



GAMES ORIENTEERS PLAY

INTRODUCTION

In 2010 Orienteering Queensland authorised the release of an electronic version of this classic Orienteering guide designed for teachers, written by Debbie Gale in 1986. Very little amendment has been made to this version with the aim of simply making it immediately available on the internet, while a full revision of the resources with higher quality graphics and mapping is produced. Further information on this guide and the coming revision can be obtained from juniordevelopment@oq.asn.au.

The content of this resource is still highly relevant and provides a wide range of activities that teachers can use from grade 1 to 12. We hope this is of use to you in your class room and provides inspiration to challenge your students in fitness, outdoor exploration, 2D and 3D spatial conceptualization, time and distance calculation, route evaluation and decision making, and just having lots of fun in the process.

Owen Richmond
Junior Development Officer
Orienteering Queensland
7 Dec 2010

PREFACE

My aim in writing this booklet is to encourage teachers to develop map literacy in their pupils through the vehicle of orienteering. To this end I have collected together more than fifty (50) orienteering activities from many different sources, and attempted to grade them in a sequence which can be matched to the pupil's level of development.

There are obvious advantages in every day life in being able to read a map with confidence, but I like to look further than this. With the increase in leisure time, outdoor recreational pursuits are becoming more popular. I believe that the skills of map reading and navigation are as vital to the safe enjoyment of the outdoors as are water safety skills. Equipped with these skills I hope more Australians will be drawn to the outdoors with benefits to levels of fitness and health. Furthermore, once fears of becoming lost are allayed, I hope people will cease to see the bush as an alien place, and that their explorations will lead them to a higher level of appreciation for their environment.

DEBBIE GALE
Brisbane 1986

NOTES ON ORIENTEERING

1. THE SPORT

Competitors navigate from point to point with the aid of a specially drawn map and a compass. The aim is to visit a number of control features, which are marked on the map by a red circle and on the ground by a marker flag. Each marker carries a punch, coloured crayon or written control symbol, enabling the competitor to prove he reached that point successfully.

2. SUITABLE AREAS

Any safe area can be used provided a map is available or can be drawn, and access has been negotiated. Pupils should start in small, well-defined, familiar areas, progressing gradually to unfamiliar areas of bush. Each activity in this booklet is designated an appropriate area.

T Table Games or Activities

R Restricted Area - Classroom, Hall, Area of Playground Equipment

E Extended Area - School Playground, Park, Bush.

It is worth noting that orienteering can be carried out by bicycle or canoe in suitable areas.

3. MAPS

These are the 'bat and ball' of orienteering. Activities can be devised on many different types of maps - from classroom plans to street maps, from aerial photos or orthophotos to topographic maps.

But remember, a map is an abstract representation of the ground. Young children require simple maps with pictorial symbols and few themes, for example, just streets and buildings. As the level of development increases, so more abstract and complex maps are required. This is why most orienteering maps are specially drawn. Help in drawing maps may be available from your local orienteering club or from juniordevelopment@oq.asn.au.

4. COMPASSES

The compass is used as a back up to the map. Silva 7NL or 3NL models are the most suitable for school use. Other good brands are Suunto (A20 model) or Recta. Chinese made 'Orion' brand compasses are not recommended.

5. TYPES OF COURSES

The classic orienteering course is the cross country event. Many alternatives can be used. See the Glossary for an explanation of score, scatter, line, marked route, star and clover leaf events.

6. START AND FINISH

These may be the same point or at different points. The start of a cross country, marked route or line course is staggered to prevent pupils following one another. A time interval of one (1), two (2) or three (3)

minutes may be used. If the event is to be a competition, the time out and in must be recorded for each pupil, allowing elapsed time to be calculated. A mass start can be used for the other events with all pupils starting at the same time.

7. MARKING UP THE COURSE

The controls are shown by red circles six (6) millimetres in diameter, and centred exactly on the control feature. The legs are shown by straight lines joining the centre of the circles although not extending into the circle.

CONTROL  START  FINISH  START AND FINISH 

If time allows the course can be pre-drawn on the pupils' maps. Otherwise master maps must be used where the pupils copy their own course. The master maps can be taped on a large board or copied onto an overhead projector transparency.



Orange and white cloth markers are available commercially. They can be improvised from stiff card, plastic core-flute or ice cream containers. When courses are being set in a small area such as a classroom much smaller markers should be used -

Classroom	3 cm square
Playground	10-15 cm square
Park / Bush	30 cm square

The size of the marker may be varied for the age and ability of the pupils.

Streamers are also useful. Orange and white strips of plastic can be stapled to wooden pegs and used for marked line events. If different colours or codes are marked on the pegs the streamers can also substitute for markers in a small area. Another alternative is to use painted blocks of softwood which can be placed directly on the ground.

8. **PUNCHES**

These are the size of a small stapler and each one has a different needle pattern that perforates the control card with a unique mark. Punches are available commercially at about \$10 each. Different coloured wax crayons can be substituted but don't hang them in full sunlight! Alternatively a code letter, or symbol can be drawn on the marker, or "treasure" collected. See "trivia" and "project" orienteering.



9. **CONTROL DESCRIPTION LIST**

This is a clue sheet. It may also contain a code number which is also placed on the marker to enable pupils to check they are at the right location.

If these are used they can be duplicated on the map or taped to the map. Alternatively they

N Course 2.5 km, 75 m climb

1. (52) W cliff 1 m, foot
2. (51) Boulderfield, E end
3. (49) Track bend
4. (48) Track-creek junction
5. (75) Track junction
6. (40) Cliff 1 m, N end
7. (31) W termite mound
8. (70) Boulderfield, W side

can be copied by the pupils from a master list.

10. CONTROL CARDS

These are available commercially or can be improvised, on a piece of card. The advantage of the commercial product is the perforated top portion which is given in at the start and used at the finish to check that all competitors have returned.

MOTT PARK

CONTROL	DESCRIPTION	LETTER
1..		
2.		
3		
4.		
5.		
6		
7.		
8.		

NAME
CLASS

FINISH TIME	
START TIME	
ELAPSED TIME	

GETTING IT ALL TOGETHER

11. SELECTING ACTIVITIES

All pupils follow a developmental learning sequence for acquiring all knowledge and skills, including map literacy. Appendix 1 is a table summarising stages of development and is intended as a guide to activity selection.

12. COURSE SETTING

There are two (2) main criteria when designing a course, namely does the course reflect the aim of the activity and can all pupils achieve a large measure of success?

For young pupils and novices, courses must be in easily traveled terrain with linear features (handrails) to follow between the control features. These features should be clearly visible from the handrail. Finding the markers should depend on skill not luck. It is often preferable to offer several short courses rather than one long one, to allow for different levels of fitness. If it is impossible to set a simple course, any hard legs can be streamered.

13. RUNNING THE COURSE

Many pupils prefer to run in pairs or small groups, particularly when they still lack confidence or are venturing into new terrain. Many adults would hesitate to run alone! Marked line and star events help the pupil to gain confidence in running alone, and relays may provide the initial "push".

Some activities which concentrate on learning or practising a specific skill in a familiar or confined area are best done individually. Many of the activities may be made competitive if so desired.

Guidelines for the activities in this booklet are as follows -

I	Individual
P	Pair
G	Group

14. PREPARATION TIME

Always allow twice as much time as you've got to draw a map! Request help from your local orienteering club. [Club contact details are available at www.oq.asn.au]

Many activities also require preparation time before and after an event. Markers should be tied and not nailed to trees in parks or the bush, neither should they be left hanging after the conclusion of the activity in these areas.

Some activities require little or no preparation. It is worth considering "trivia" or "project" orienteering if time is unavailable for setting up a course.

BEWARE of using activities where the class set out the markers until you are sure they are capable of doing it correctly.

15. CLASS ORGANISATION

When one (1) teacher has sole responsibility for a large group, several sets of the same, or a similar activity may be set up. Groups can progress from one to the next, or circulate round the sets, checking their code letters from a card as they finish each one. When using a staggered start, make sure the slowest pupils start first. There is time for marking up maps from a master with a staggered start. 'Score' events are ideal for making sure all pupils return by a set time.

16. DISABLED STUDENTS

Many of the activities can be based in the classroom, a hall or playground and can be used with pupils with limited mobility. Use of a compass does require fine motor control. As orienteering is a visual sport deaf students are at no disadvantage. With the introduction of raised line maps there is great potential for use of many of the activities with blind pupils. Orientation is of prime importance. Is there an adaptation of a compass available? Could sound be used as a basis for orientation?

All pupils follow a developmental learning sequence for acquiring the skills of map literacy. There seems to be no reason why pupils designated as slow learners cannot enjoy many of the activities as long as they are suited to their abilities, not to their chronological age.

17. SAFETY

Any teacher organising a program of orienteering activities needs to be safety conscious, particularly in a bushland setting. The major safety measures that have been found to work with orienteering are as follows -

(i) Safety Bearing

Before students go out on a bushland course they are instructed that if they get hopelessly lost they should take a certain direction which will lead them to a road or other major feature at the edge of the map.

(ii) Abort Time

Students should be given a time when they should discontinue the activity and return to the start-finish area. This may be two (2) hours after starting or else at a certain fixed time when the course is being closed and control flags collected.

(iii) Whistle

In case of an emergency occurring, students should carry a whistle to blow a distress signal, usually six (6) blasts repeated at regular intervals.

(iv) Helping Others

Students should be instructed to assist others who are injured, and to abandon their own course, in order to get 'help'.

(v) Dangerous Spots

Courses should be set so as to avoid dangerous places such as steep cliffs, old quarries, uncrossable streams, main roads.

(vi) Snakes

Generally snakes will hide away when they hear a runner approaching. However, it is best to warn students about snakes and what to do in the event of a snake bite.

(vi) First Aid Kit

Always ensure you have a fully stocked first aid kit and someone trained in first aid if you are running an event in a bush environment.

18. Risk Assessment (Added 2010)

When organising a program of orienteering activities in your class you need to have conducted the appropriate risk assessments. You should obtain copies of the Curriculum activity risk management modules for Park and Bush Orienteering from <http://education.qld.gov.au/strategic/eppr/health/hlspr012/index1.html>.

(i) School Based Orienteering.

This is orienteering conducted within the ground of a school, and does not require any additional risk assessment over a normal PE activity.

(ii) Park Orienteering.

A parkland setting is one that is modified, semi-natural or managed with clearly defined containment features. EQ classified park land orienteering as inherently medium risk,

You need to complete the risk assessment for Park Orienteering and should have some previous Orienteering experience or a Level O Orienteering Coaches Qualification. Maroon OEC is a provider of Level O qualifications.

(iii) Bush Orienteering.

A bushland setting is one that is natural, generally unmodified with little, no or poorly defined containment features. EQ classified bush land orienteering as inherently high risk, however these risks can be mitigated with careful selection of your bushland location that have major containment features such as road, fences or power line clearings.

You need to complete the risk assessment for Bushland Orienteering and should have some previous Orienteering experience or a Level 1 Orienteering Coaches Qualification. Orienteering Queensland is the provider of Level 1 Orienteering Coaching qualifications. A list of currently qualified Level 1 Coaches is at <http://www.orienteering.asn.au/coaching/accreditedcoaches/>

ORIENTEERING ACTIVITIES

SUGGESTED GRADE DIVISIONS

1 3

4-6

7-9

10-12

AREA KEY

T - TABLE GAME

R - RESTRICTED AREA

E - EXTENDED AREA

GROUPING KEY

I INDIVIDUAL

P PAIR

G GROUP

ACTIVITY NUMBER	ACTIVITY NAME	1-3	4-6	7-9	10-12	T	R	E	I	P	G
1	BIRD'S EYE DRAWINGS	x	x			x	x		x		
2	SEARCH AND FIND	x	x				x		x	x	x
3	TREASURE HUNT ON BASE MAPS	x	x				x		x	x	
4	BASE MAP ORIENTEERING	x	x				x		x		
5	MAP SYMBOL BINGO	x	x			x			X		
6	MAP SYMBOL RELAY	x	x				x				x
7	MAP SYMBOL PAIRS	x	x			x			x	x	x
8	MAP JIG-SAW PUZZLES	x	x			x			x	x	
9	CHECK OFF THE SYMBOLS	x	x	x				x			x
10	ARRANGING THE FURNITURE	x	x			x	x				x
11	CREATING LANDSCAPES AND MAPS	x	x			x			x	x	x
12	LOST IN SPACE	x	x				x		X		
13	DRAWING A MAP FROM A PICTURE		x	x		x			X		
14	A WALK AROUND THE MAP		x	x			x		X		
15	LANDMARK HUNT		x	x				x			x
16	MARKING UP THE MAP RELAY		x	x			x				x
17	ORIENTATING THE MAP		x	x				x			x
18	3D ORIENTEERING		x	x	x		x		X		
19	LABYRINTHS		x	x	x		x		X		
20	MUSICAL CONTROLS		x	x			X		X		
21	MARKED ROUTE ORIENTEERING		x	x	x		x	x	X	x	
22	FOLLOW THE LEADER		x	x	x			x			X
23	STAR ORIENTEERING		x	x			x	x	X	x	
24	TREASURE HUNT ORIENTEERING		x	x			x	x	X	x	
25	CROSS COUNTRY ORIENTEERING		x	x	x			x	X	x	
26	SCATTER ORIENTEERING		x	x	x			x	X	x	X
27	SCORE ORIENTEERING		x	x	x		x	x	x	x	
28	LINE ORIENTEERING		x	x	x		x	x	x	x	x
29	MAP MEMORY STAR EVENT		x	x	x		x	x	x		
30	MAP MEMORY CROSS COUNTRY EVENT		x	x	x			x	x	x	
31	TRIVIA OR PROJECT ORIENTEERING		x	x	x		x	x	x	x	x
32	HANG THE CONTROLS		x	x	x		x	x			x
33	A PIECE OF CAKE		x	x	x		x	x			x
34	DESIGN A COURSE		x	x	x		x	x			x
35	REFERENCE SYSTEM ORIENTEERING		x	x	x		x	x	x	x	x
36	IMAGINERY JOURNEY		x	x	x	x			x	x	x
37	THE CARDINAL POINTS		x	x		x			x		
38	DIAL-A-BEARING		x	x			x		x		

ACTIVITY NUMBER	ACTIVITY NAME	1-3	4-6	7-9	10-12	T	R	E	I	P	G
39	HUNT-THE-PENNY		x	x			x		x		
40	FOLLOWING A BEARING			x	x			x	x		
41	TAKING BEARINGS			x	x	x			x		
42	COMPASS BEARING STAR RELAY			x	x			x			x
43	ESTABLISHING PACE COUNT			x	x		x		x		
44	PACING EXERCISES			x	x			x	x		
45	IMAGINERY MAZE			x	x		x	x	x		
46	GORDON'S GRID			x	x			x	x		
47	COMPASS AND PACING COURSE			x	x			x	x		
48	DRAWING ACCURATE MAPS			x	x		x	x	x	x	x
49	DRAWING A MAP FROM A DESCRIPTION			x	x	x			x		
50	VISUALISING CONTOUR LINES			x	x		x	x			x
51	MODEL ISLAND CONTOUR MAP			x	x	x					x
52	CONTOUR GAMES			x	x	x			x	x	x
53	MAKING CONTOUR MODELS			x	x	x			x	x	x
54	DRAWING CONTOUR SECTIONS			x	x	x			x		
55	CONTOUR LINE ORIENTEERING				x			x	x	x	x
56	CONTOUR COURSE				x			x	x	x	x

1	BIRD'S EYE DRAWING	1-3	4-6	T R	I
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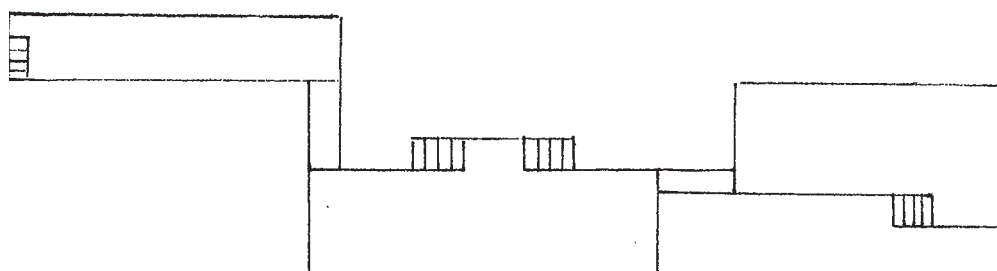
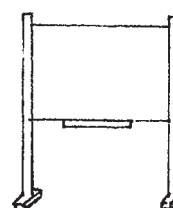
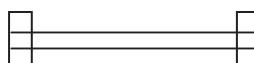
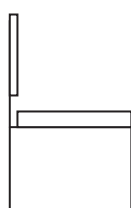
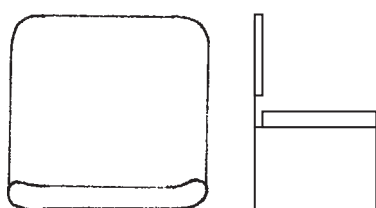
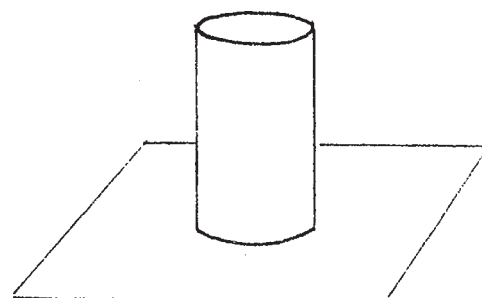
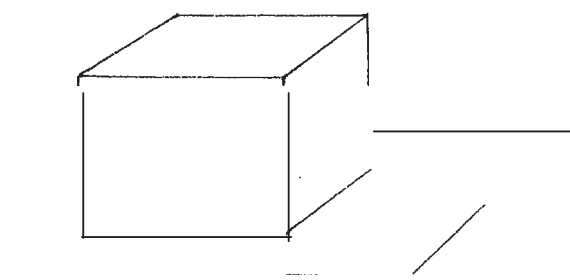
Aim: To help pupils to visualise features in plan view.

Preparation: None

Activity: Pupils are first asked to draw plans of classroom objects such as books, boxes, bottles, etc., which they can actually draw round. They can then progress to larger objects such as tables and chairs, which, if necessary, can be viewed from above. The next stage is the plan drawing of simple buildings, goal posts, etc., and finally complex buildings, someone riding a bicycle, etc.

Notes: Extension Activity

1. Pupils are given aerial photos to look at how landscapes appear in plan view.
2. Pupils are asked to draw a map from a simple picture, see Activity 13.



2	SEARCH AND FIND	1-3 4-6	R	I P G
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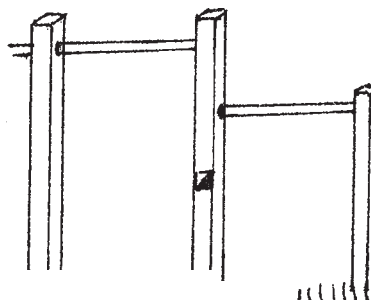
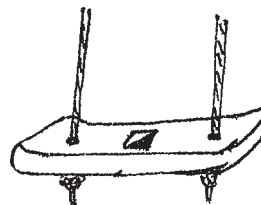
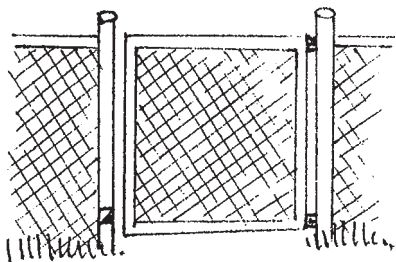
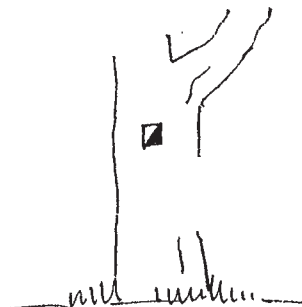
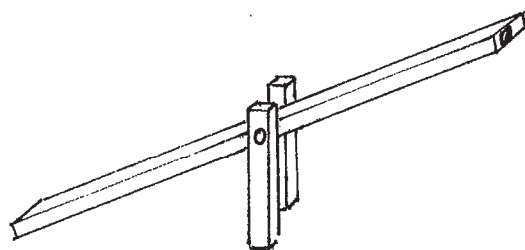
Aim: To demonstrate the problems of finding objects by random search.

Preparation: In a restricted area such as classroom, hall or playground put out treasure or stickers at various locations. Place some in locations which are hard to find.

Activity: Pupils are told that there is treasure (stickers) hidden round the area. They are given a set time to see how many treasure locations they can find.

After the time has elapsed, the locations are discussed. Some will probably have been missed.

Notes: 1. This leads directly into Activity 3.



3	TREASURE HUNT ON BASE MAPS	1-3 4-6	R	I P
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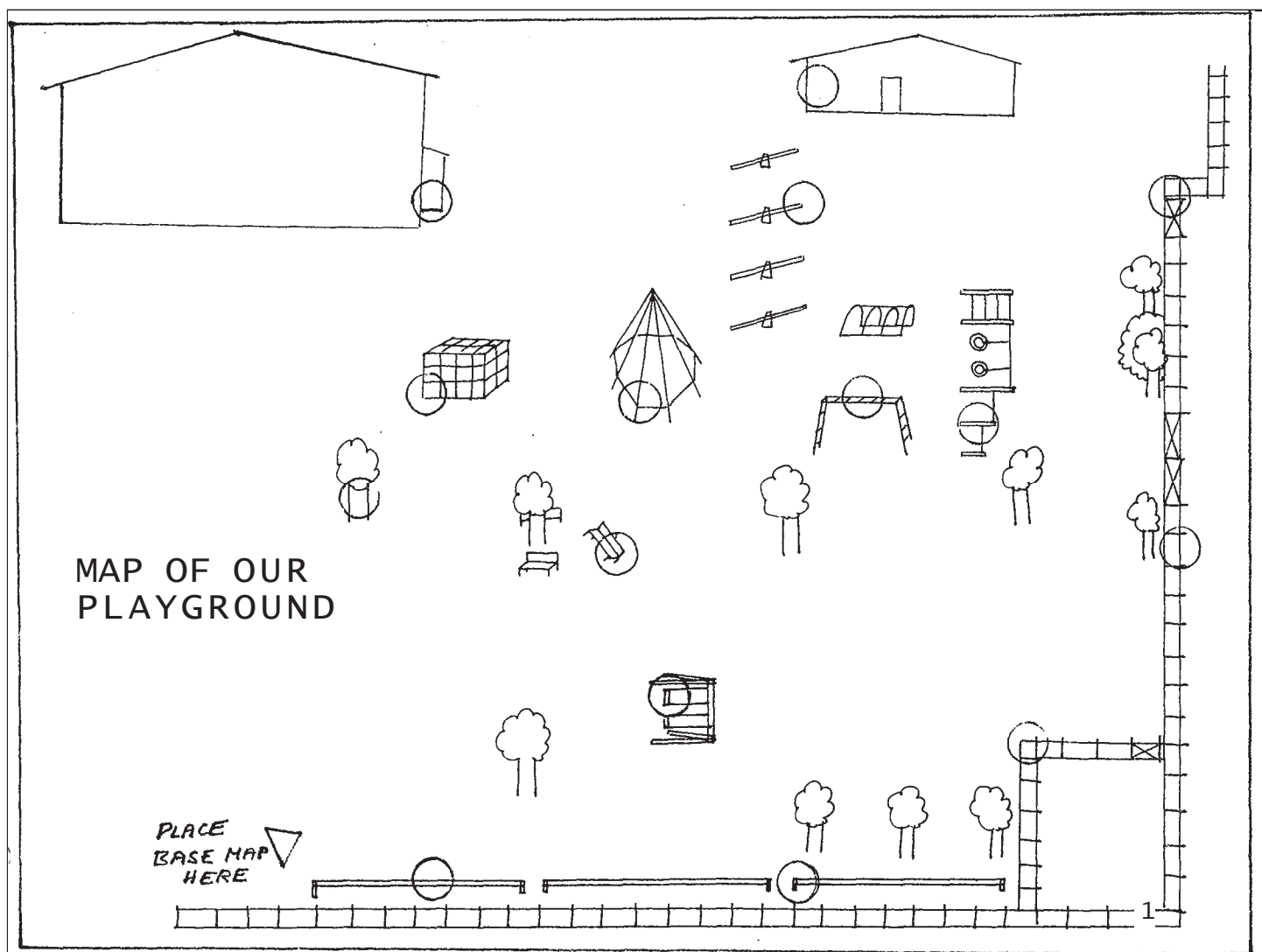
Aim: Introduction to transferring the map information to reality.

Preparation: A sketch map can be pre-drawn or drawn with the pupils watching on a large sheet of card. A suitable area is a courtyard or play-ground with obvious features. Small treasures can be placed at various features - e.g. dead matches, leaves, pegs, shells, etc., enough for one for each pupil or pair.

Activity: If map is not pre-drawn, draw it with pupils watching, looking down on map and with map always orientated correctly. Use pictographs or symbols and legend according to age of pupils.

Orientate map in centre of area to be used - with help of pupils. Place rings on map to mark sites of treasure. Pupils have to collect treasures - a plastic bag may be useful!

- Notes:
1. This can be used as an orienteering event rather than a treasure hunt, see Activity 4.
 2. Pupils set up course for a 'visitor' (another teacher) or class or their own classmates.
 3. Older pupils can draw up their own maps of a room, or a small part of the playground and set a course for their classmates.
 4. This can lead on to Activity 14.



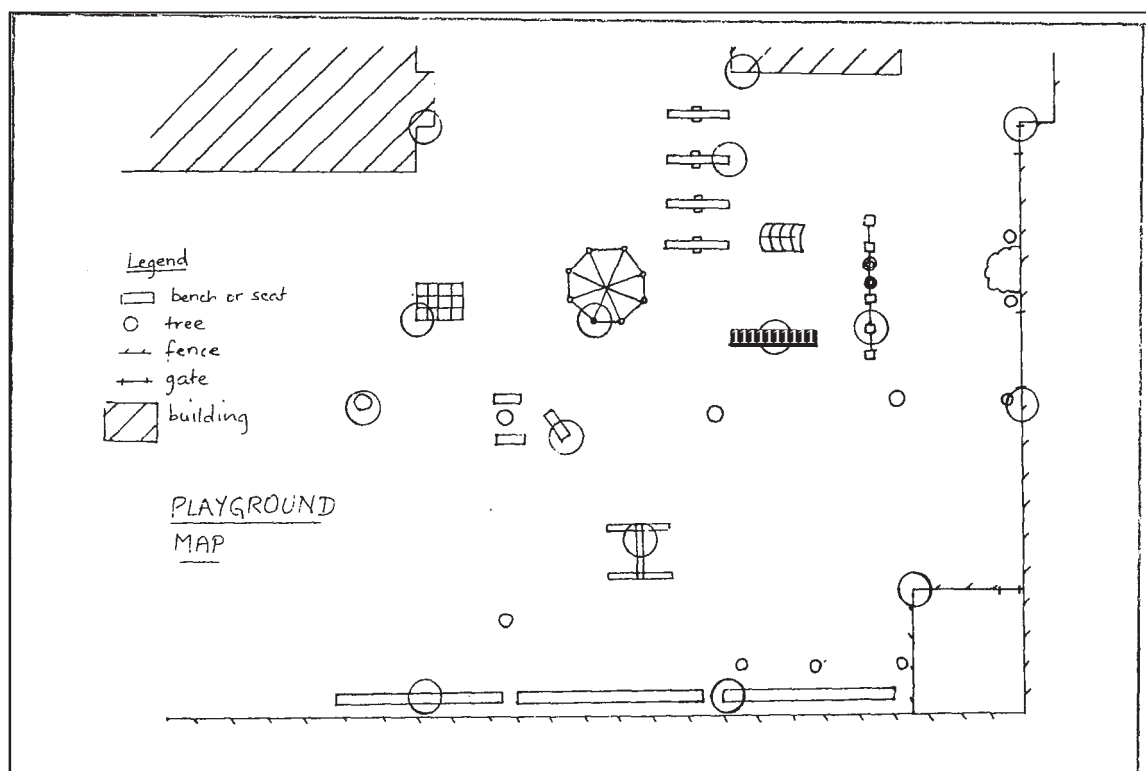
4	BASE MAP ORIENTEERING	1-3 4-6	R	I
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Aim: To let the pupils see the teacher draw a map of the classroom or small area of the playground, to help draw up a legend and then use the map for an orienteering event.

Preparation: Large card, rings. Place orienteering markers on features that will be drawn on the map. It is a good idea to pre-draw the map lightly in pencil!

Activity: Arrange the pupils in a circle round the card which is placed on the floor or on a low table, so they are looking down on it. Draw in the outline shape then add features. Use symbols suitable for the child's age - pictographs for young children, abstract symbols based on plan view for older children. If symbols are used draw up a legend. The map should always be correctly orientated. Place the rings on the features which the markers have already been fixed. Pupils then have to look for the markers and record the control code. Stress the need to keep quiet about the control locations!

- Notes:**
1. Similar to Activity 3. The treasure hunt idea can be used in the classroom for younger pupils.
 2. This activity can be used as an introduction to orienteering for older pupils with little need for preliminary explanations. Abstract symbols should be used and the markers should be small with a control code letter. A detailed area of park or bush is suitable. The map is orientated, rings are placed on the control sites and a time given for the sites to be visited and the codes to be recorded. This can lead to a discussion of maps, map orientation and map reading.



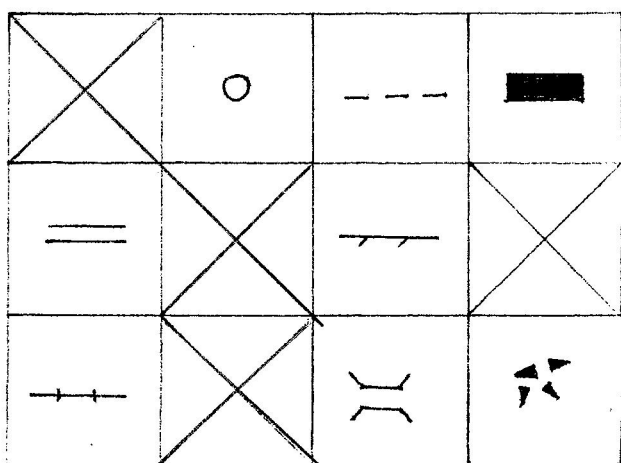
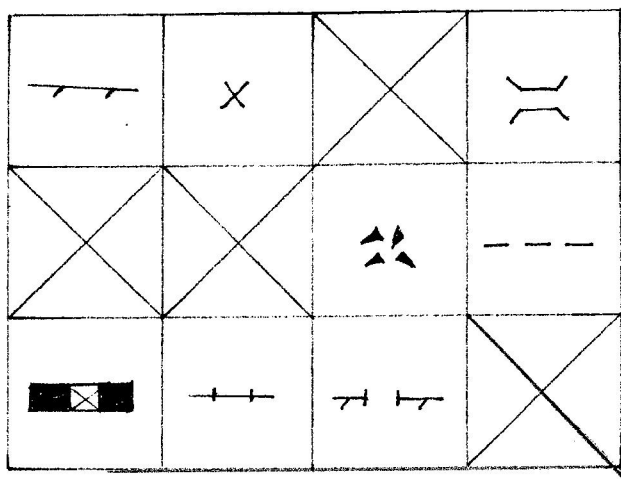
5	MAP SYMBOL BINGO	1-3 4-6	T	I
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Aim: A game to teach map symbol recognition.

Preparation: A set of bingo cards with about five (5) symbols drawn on. Each card must be a different combination. A set of flash cards of all the symbols used.

Activity: Each pupil receives a bingo card. The teacher shuffles the flash cards then turns them up one by one.

- Notes:
1. The teacher can use the word not the symbol, or the bingo cards can contain the word and the teacher holds up the flash cards of the symbols.
 2. The symbols may be those used on orienteering maps or on topographic sheets. Check the section on maps at the beginning of this booklet.



6	MAP SYMBOL RELAY	1-3 4-6	T	G
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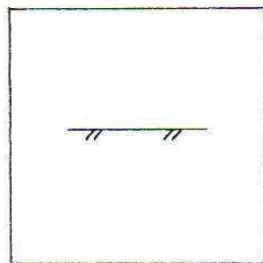
Aim A game to teach map symbol recognition.

Preparation: Make up a set of cards with a symbol drawn on one side and the name of a different symbol on the reverse. The number of cards should be equal at least to the number of students in the class.

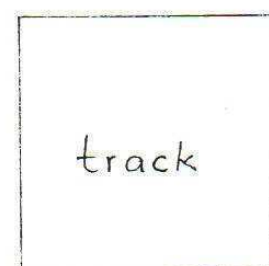
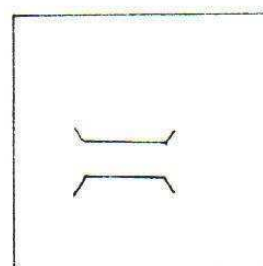
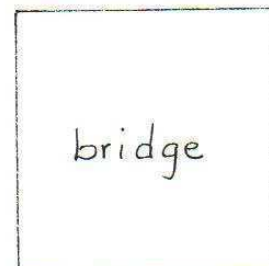
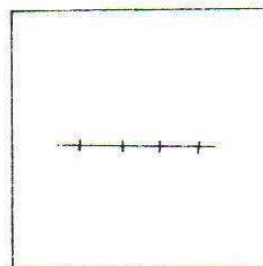
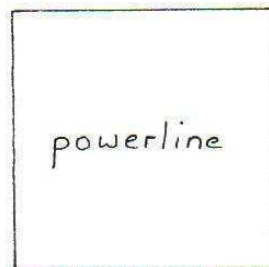
Activity: Divide the class into two (2) or more teams. Place all the cards symbol side up at some distance to the teams. The first runner chooses a card, hands it to the second who turns it over, reads the next feature and runs up to find that symbol. He or she returns that card to the third runner, etc. The team with the most correct cards is the winner.

Notes: The symbols may be those used on orienteering maps, or those used on topographic sheets. Check the section on maps at the beginning of this booklet

FRONT



REVERSE



7	MAP SYMBOL PAIRS	1-3 4-6	T	I P G
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Aim: To increase familiarity with map symbols.

Preparation: Make up sets of cards showing symbols in correct colour where possible.

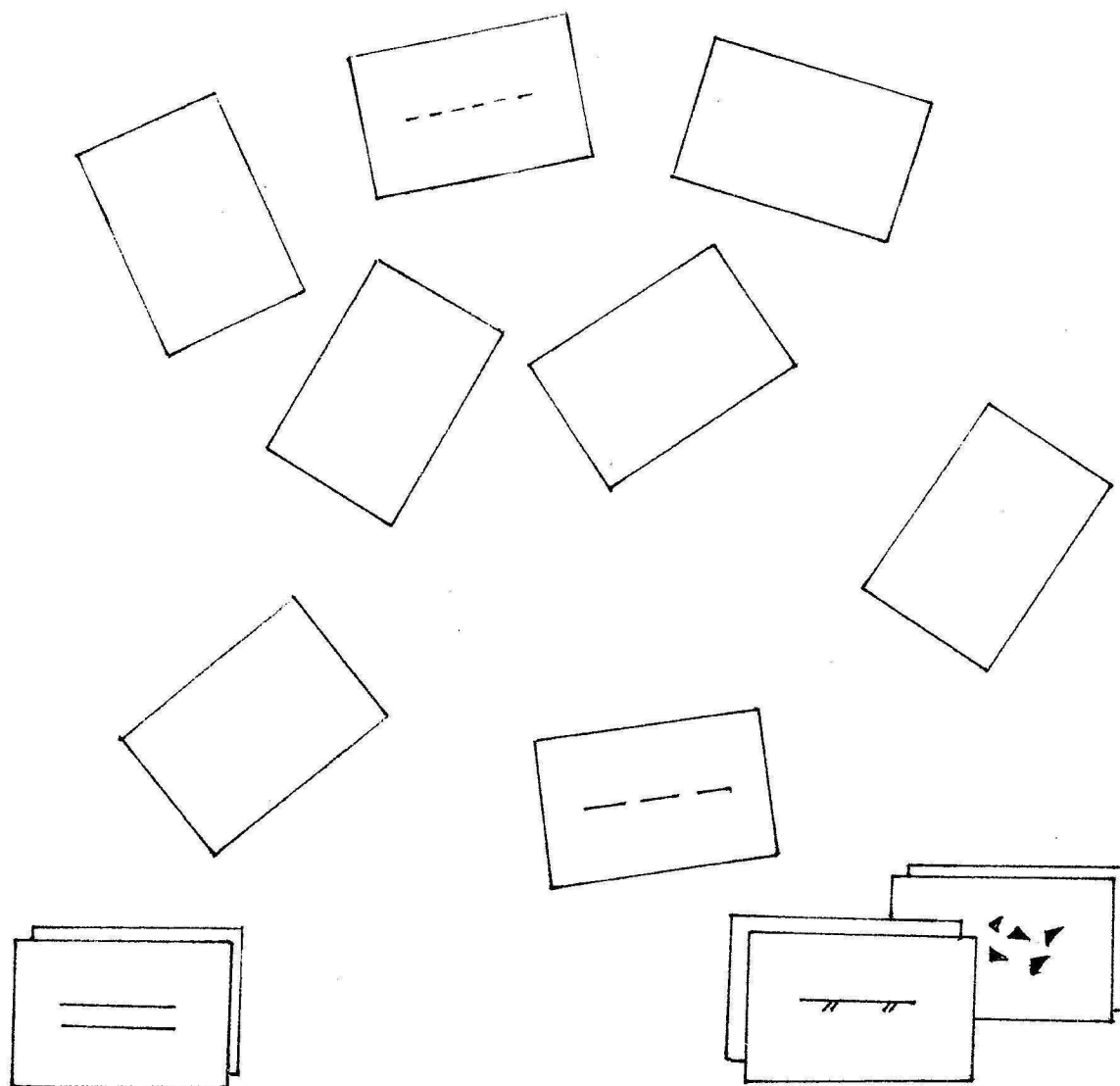
A pair of each symbol is needed.

Activity: Cards are placed face downwards and spread out. Each pupil turns up two cards. If they match they keep them and have another go. If not they are placed face down again.

Notes: 1. The symbols may be those used on orienteering maps or those used on topographic sheets. Check the section on maps at the beginning of this booklet.

Extension Activity

2. The card set is made up with one of the pair being the symbol and the other being the written description.
3. Once the pupils have some familiarity they could make up their own lotto game.



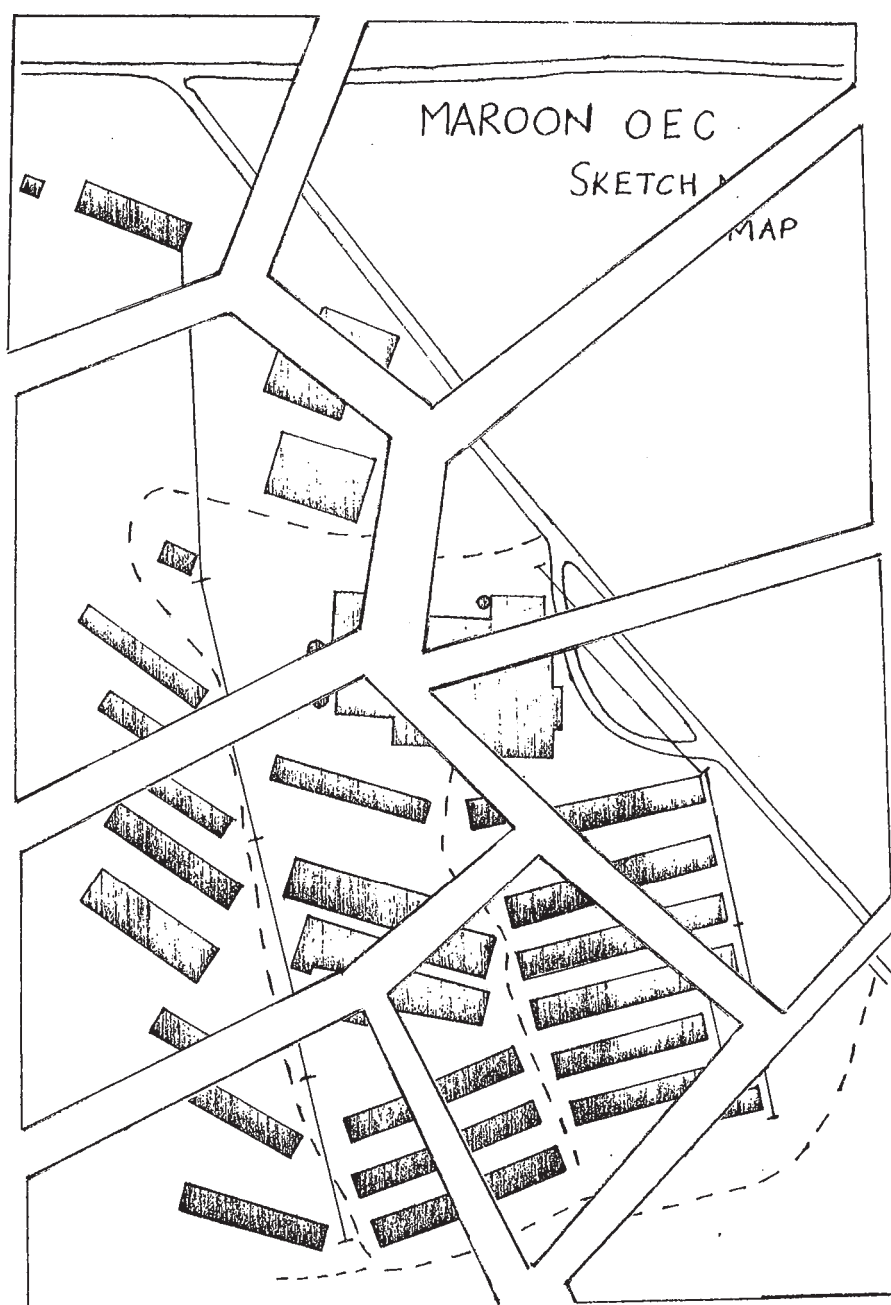
8	MAP JIG-SAW PUZZLES	1-3 4-6	T	I	P
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Aim: To familiarise pupils with different maps while reconstructing them from cut up pieces.

Preparation: Cut up maps into sections, the size depending on the age of the pupils.

Activity: The pupils must reconstruct the map.

- Notes:
1. This can be organised as a relay. Twelve (12) piece maps are good for this.
 2. For young children a copy of the same map can be used as a base on which to build the jig-saw.

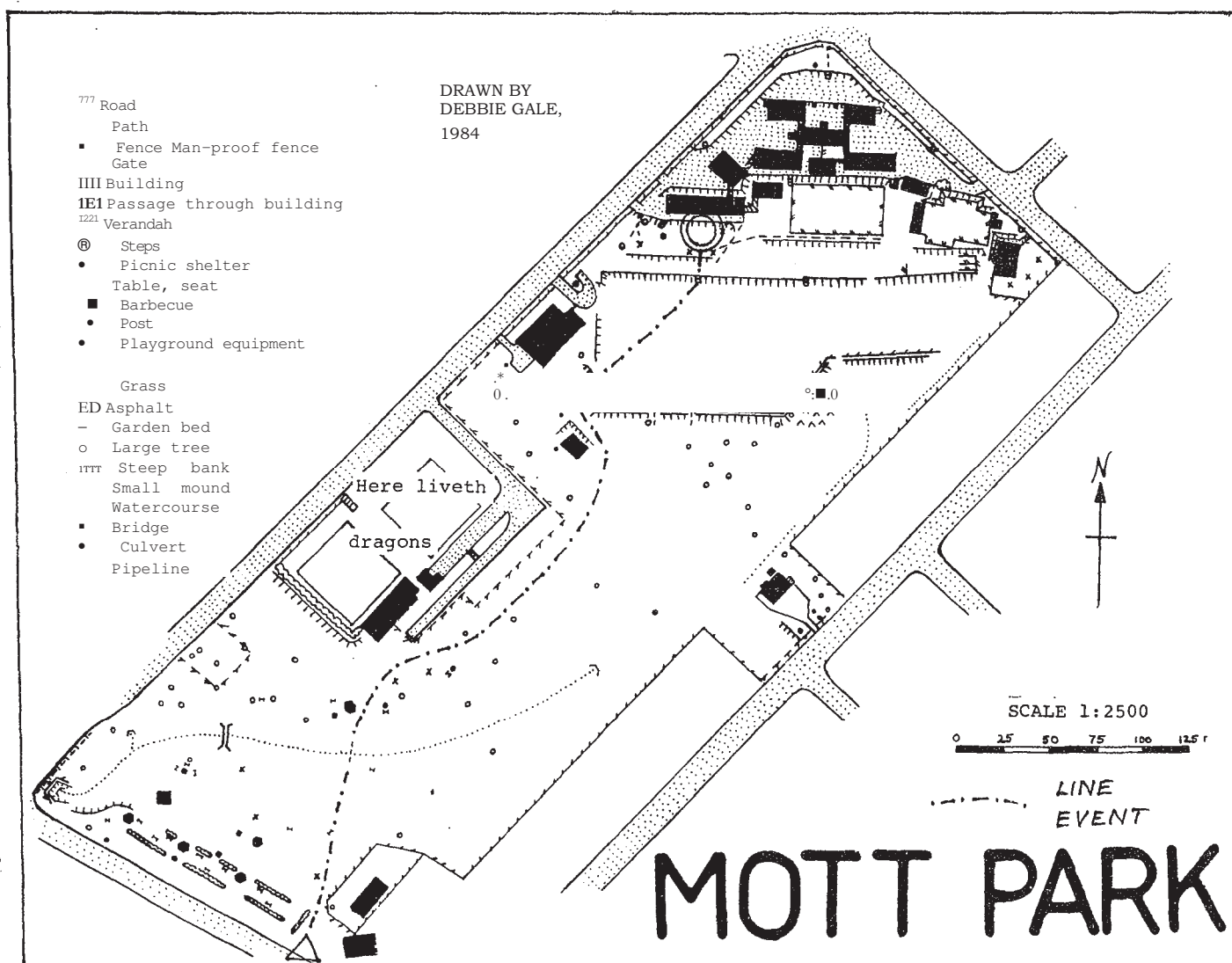


9	CHECK OFF THE SYMBOLS	1-3	4-6	7-9	E	G
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- Aim:** To provide practice in relating map symbols to actual features by means of a group walk.
- Preparation:** Plan a line event on a map of the school grounds, park or bush which involves following or passing different features. For young pupils see the notes below.
- Activity:** Discuss aim. At start use the map to describe what you expect to see on the first part of the walk, to the left, right and in front of you. Check off features as you pass them. The pupils can take it in turns to lead the group and say what they expect to see on the next section.
- Notes:**
1. For young pupils the line event should start at the bottom of the map and travel in a nearly straight line to the top. The pupils will then be able to hold their map 'the right way up' and still have it correctly orientated. The symbols must be pictorial.
 2. For older pupils this can be combined with Activity 17 on map orientation.

Extension Activity

4. Writing the description of a journey from information on a map - see Activity 36.



10	ARRANGING THE FURNITURE	1-3 4-6	T R	G
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Aim: To arrange features as depicted on a map or plan.

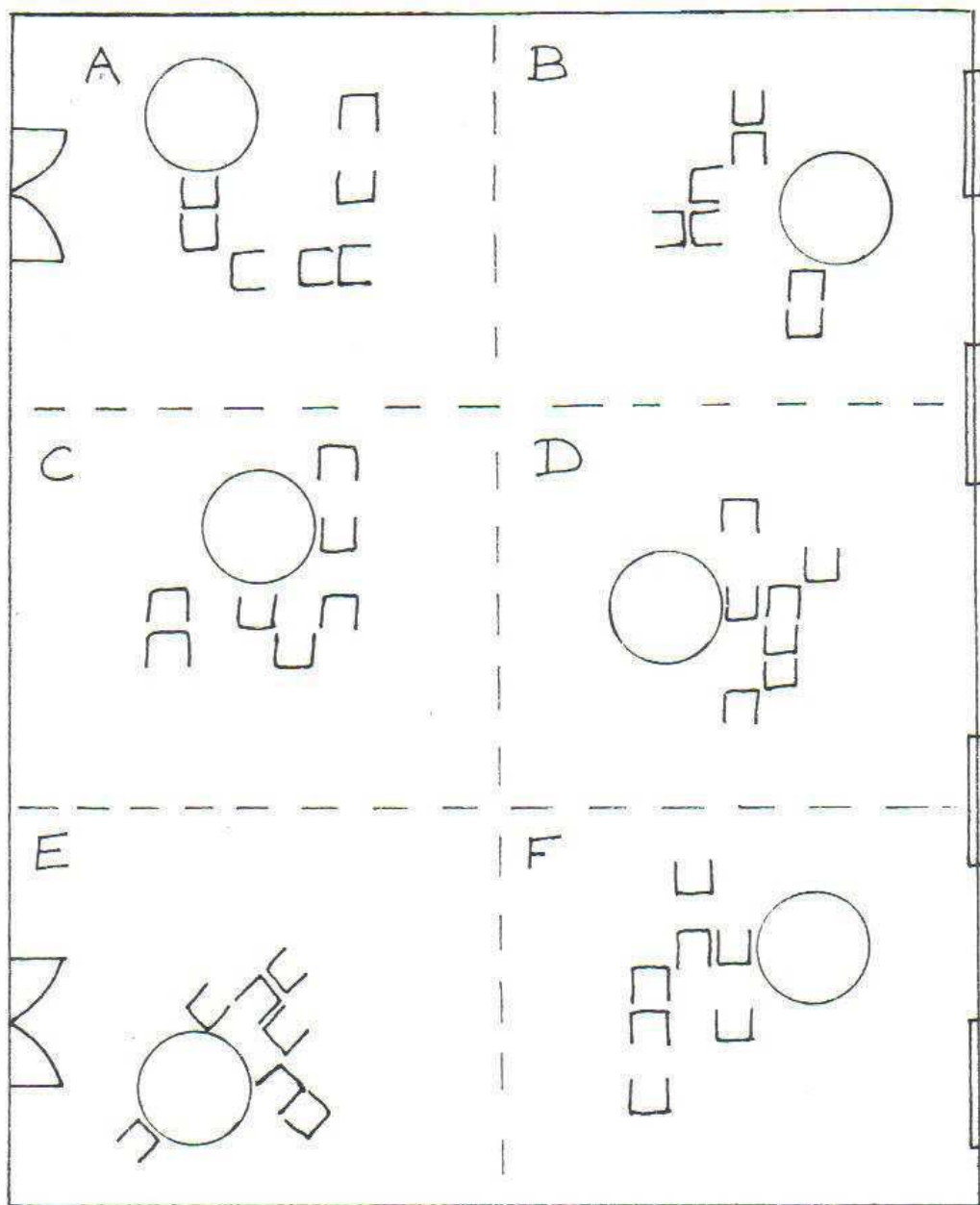
Preparation: Map of area to be used with arrangement of features to be organised. Features must be at one side or in a different arrangement.

Pupils are given the map, divided into groups and each group asked to arrange the "furniture" as shown on the map.

Activity: 1. This can be effective in a classroom, hall, court area with chairs, tables, or witches hats, or part of the playground with forms and rubbish bins together with contrived objects. It can also be used as a table game where pupils have to arrange books and pencils on their desk according to a set plan. Pairs of pupils can design plans for each other.

Notes:

2. With young pupils orientation can be ignored, but this factor can be discussed with older pupils.

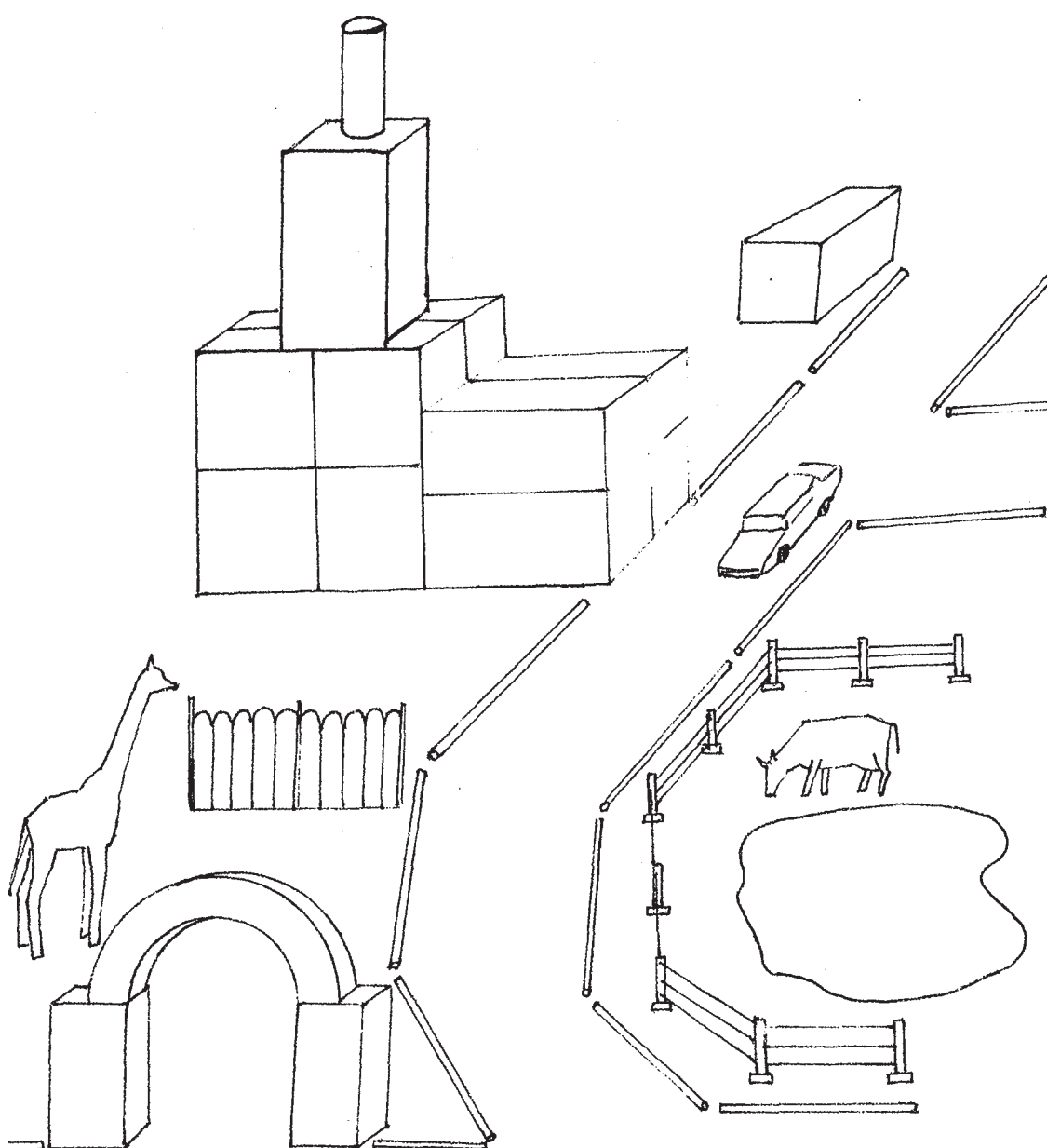


11	CREATING LANDSCAPES AND MAPS	1-3 4-6	T	I P G
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Aim: To allow pupils to build their own landscape and then draw a map of it according to their particular level of understanding.

Preparation: Gather suitable materials. A sand tray or pit makes an ideal base. Modeling materials may be blocks, stones, modeling clay, twigs, blue wool or paper for rivers, toy cars, people, animals, etc.

Activity: Pupils use the environmental modeling toys to create landscapes. They may then be asked to draw a map of their landscape and encouraged to think what is at the "top", "bottom", left and right. Older children can select those objects that are permanent and think about using symbols, relative direction and distance.



12	LOST IN SPACE	1-3 4-6	R	I
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Aim: To help young children develop their sense of relative direction and distance by means of "me-maps". The extension activity allows older children to gain practice using absolute direction and distance. It also shows the use of maps for location.

Preparation: This is most easily done in the classroom. A hall or courtyard can be used if each child is provided with a base for example a weighted card bearing his or her name. A set of large cut out pictures of space objects is needed. These are placed around the edge of the area to be used.

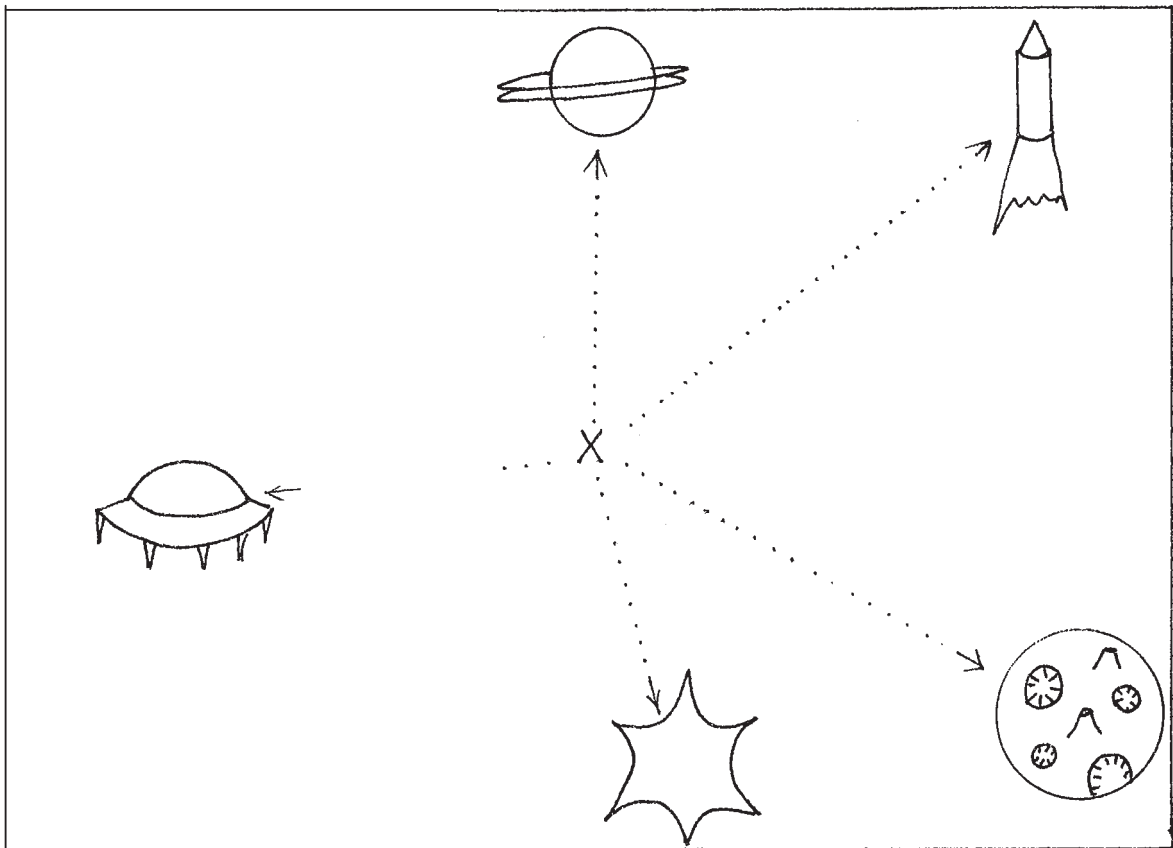
Activity: The teacher explains that the class is lost in space and must draw a map to find out where they are. Relative location is then discussed by asking the pupils what is in front of, behind, to the left of, right of, near or far from them. The pupils are given a sheet of paper on which they mark a cross in the centre to represent their location. They must then draw a line to each object, drawing or naming that object at the end of the line.

Notes:

1. This can be linked to any work the pupils are studying, Lost at the Zoo, Lost under the Sea, etc.
2. It can be used as a build up to absolute direction and distance by getting the pupils to draw a second map from a different location. The maps are then compared.

Extension Activity

3. Absolute direction is introduced by drawing a compass rose, correctly orientated, on the map. Each direction line can be given a named direction with older pupils. Scale can be introduced and accurate distances recorded.



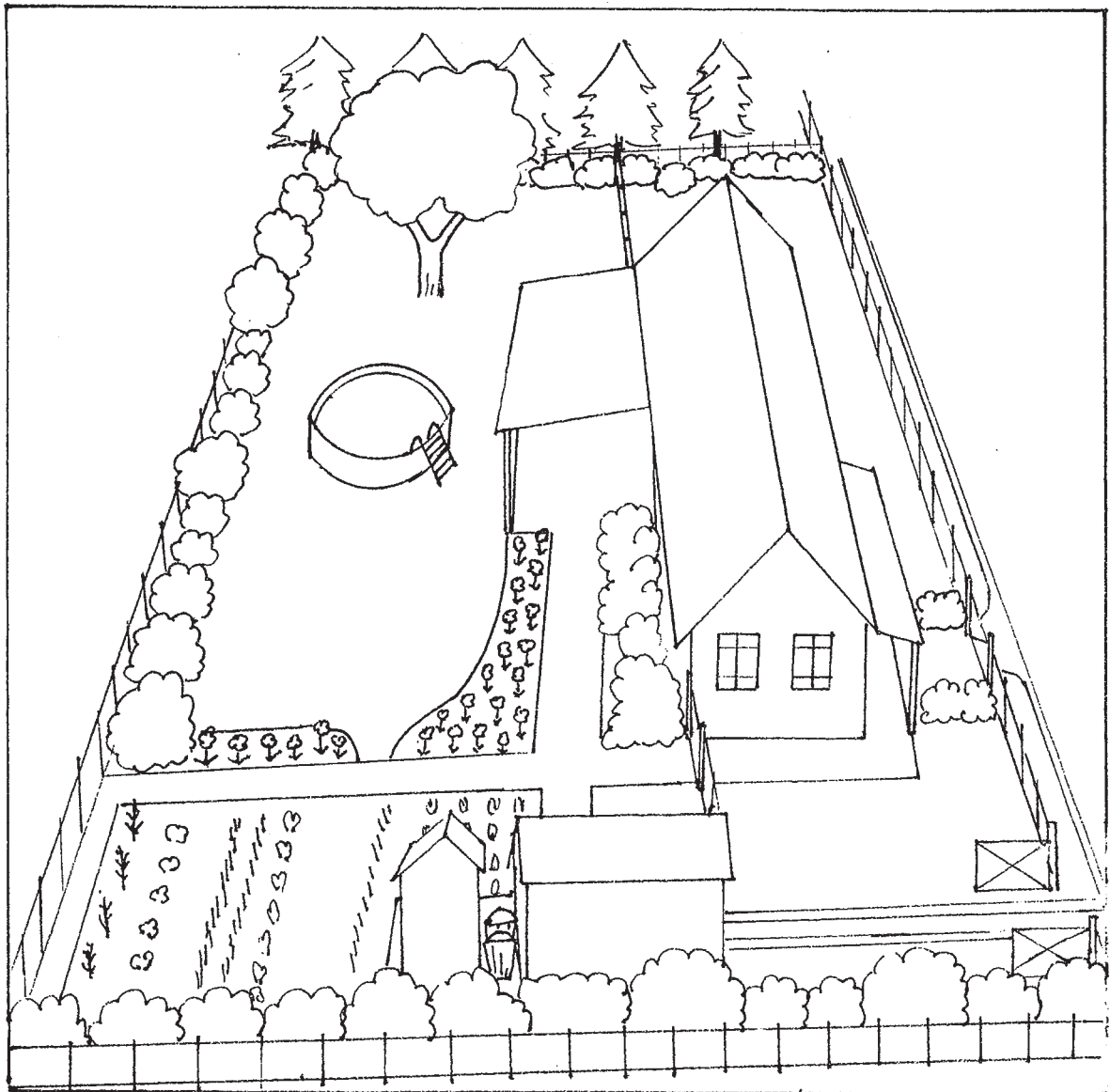
13	DRAWING A MAP FROM A PICTURE	4-6 7-9	T	I
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Aim: To give students practice at picturing an area from the bird's eye view.

Preparation: Choose pictures suitable for the group. A simple line drawing is best for younger children.

Activity: Each pupil views the picture and draws the information shown in the picture in map form. A title and legend is added. A rough scale and north arrow can be included if the necessary information is provided.

Notes: 1. An alternative activity is to ask the pupils to draw maps from aerial photos.



14	A WALK AROUND THE MAP	4-6 7-9	R	I
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Aim: To introduce the idea of orientating the map to the terrain (orientate - to bring into due relation with surroundings).

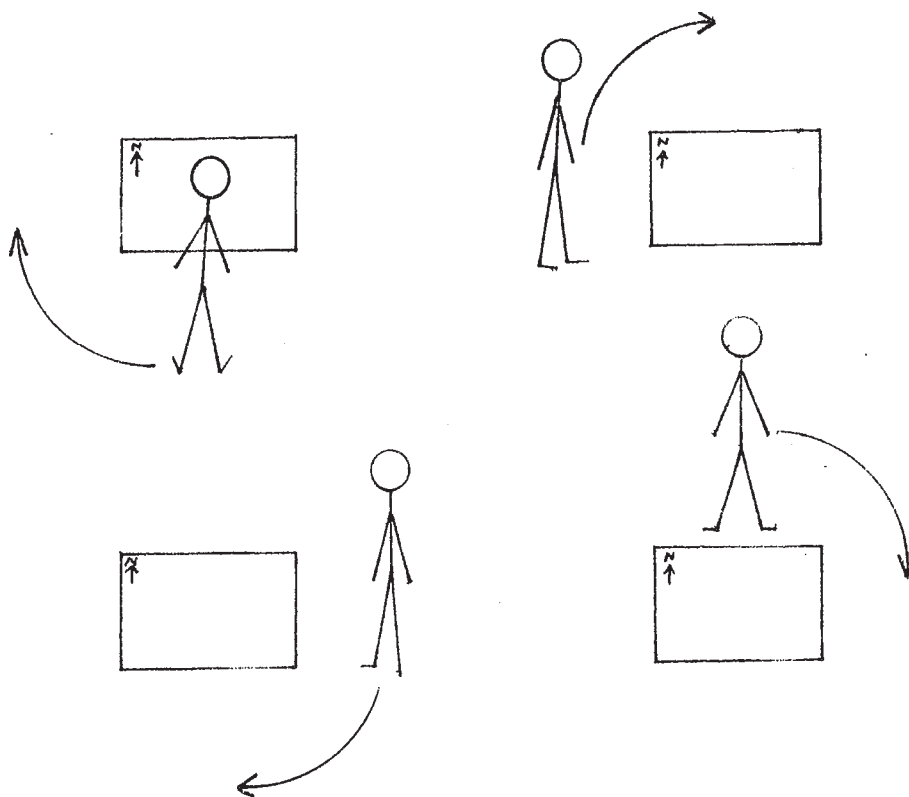
Preparation: Choose an area with which the pupils are familiar such as their classroom or a part of the playground. Draw a map with accurate peripheral detail - e.g. walls of the classroom, buildings round the oval. Duplicate maps.

Activity: Each pupil is given a map and time to study it.

Ask the pupils to face one particular feature and orientate their map so that it fits with the features around them. The map is then placed in front of the pupil, in the correct orientation.

(It is simplest to start facing north, i.e. the map is 'straight'.) Ask the pupils to walk round the map stopping at each side to check the features of the map with the terrain.

Now, ask the pupils to pick up the map. Face north again and check the map is orientated. Next, ask the pupils to face the feature to east or west - and see what has happened to the map. Repeat until the pupils realise that although they turn, the map must not, if it is to stay correctly orientated. They take a walk literally 'around the map'.

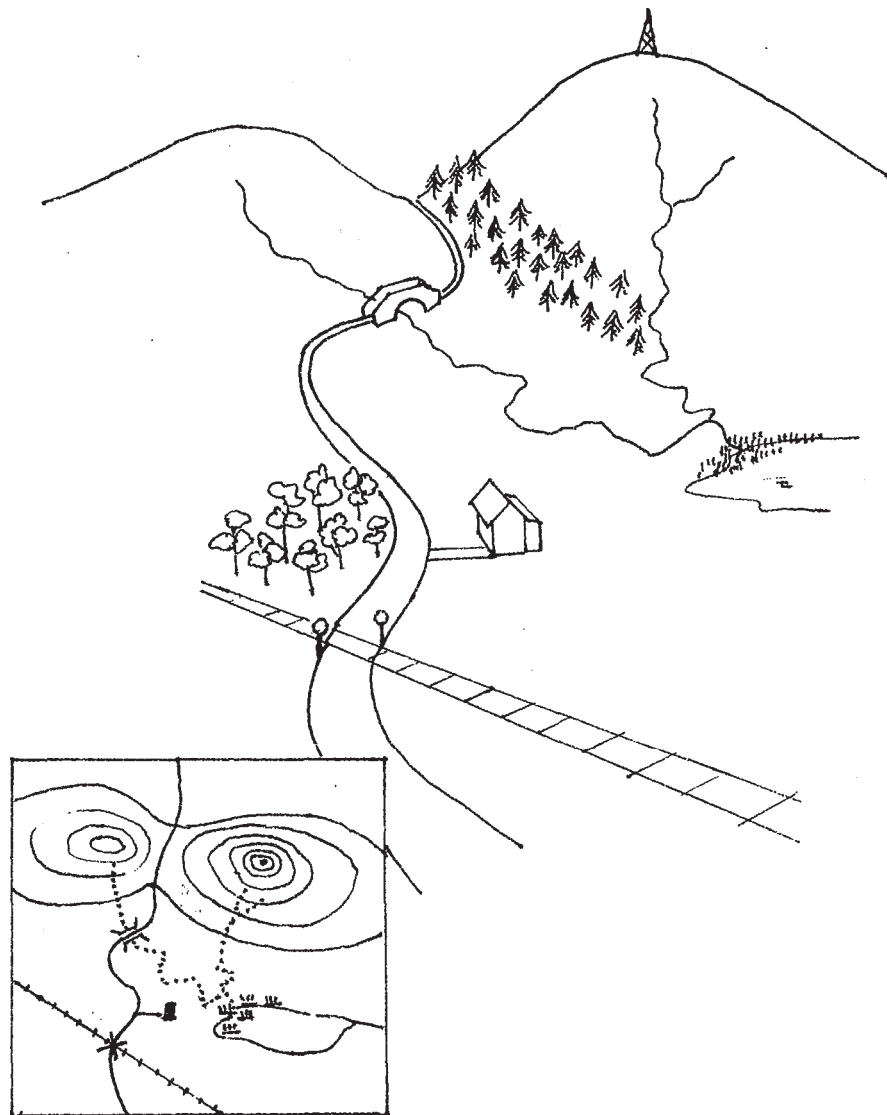


15	LANDMARK HUNT	4-6 7-9	E	G
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Aim: To introduce or give practice in orientating the map correctly and relating map symbols to the terrain features.

Preparation: Choose an area with a good vantage point of which a map is available. It may be necessary to draw a map just for this exercise.

Activity: Each pupil (or group of pupils) requires a copy of the map. At the vantage point various features are picked out then the map is orientated and the feature located on the map. Map features can then be looked for in the terrain.



16	'MARKING UP A MAP' RELAY GAME	4-6 7-9	R	G
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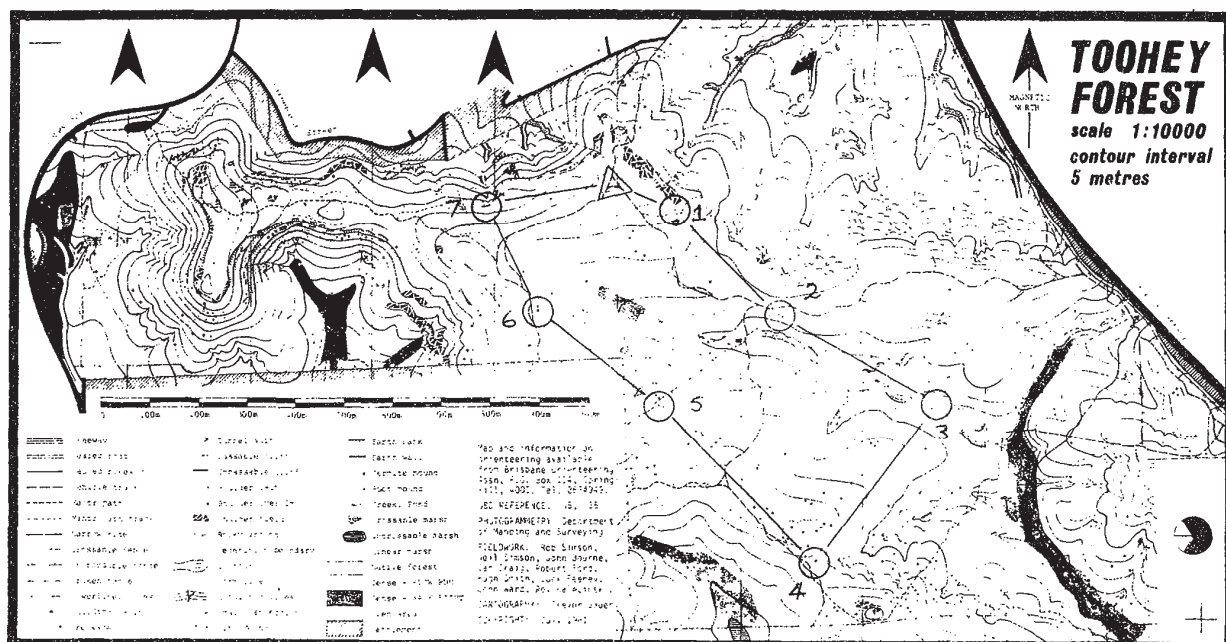
A commercial production of this game is available.

Aim; To give pupils practice in map scanning and accurate location of symbols. To introduce the idea of cross country orienteering courses. It also gives practice in symbol identification.

Preparation: Draw up a course on a master map and make enough copies for one (1) master per one (1) or two (2) teams. A blank map is also needed for each team.

Activity: Pupils are divided into teams and each team is given a blank map, a soft pencil and a ruler. After the signal to start the first team member runs to a nearby table and deposits the blank map and pencil then runs on to the master map. He or she memorizes the position of the start, runs back to the team map and marks on the triangle before returning to the team. When tagged the second member runs up to draw in the first control circle, etc. The last runner joins the circles then runs back to the team with the completed course. A course description list is then written out by the team captain with help from the rest of the team. The first to finish correctly is the winner.

Notes: 1. The 'best' route can be planned by each team, and then described.
2. The maps may be laminated and used with pen which can be cleaned off with methylated spirits later.



17	ORIENTATING THE MAP	4-6 7-9	E	G
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Aim: To provide practice in map orientation by means of a group walk.

Preparation: Plan a line event on the map which follows handrails and involves several changes of direction. Pre-marked or master maps can be used.

Activity: Discuss Aim. At start demonstrate how to fold the map to aid concentration on the first part of the course, and show how to hold the map with the thumb marking your position (thumbing the map). Orienteate the map with the ground by aligning map features with terrain features.

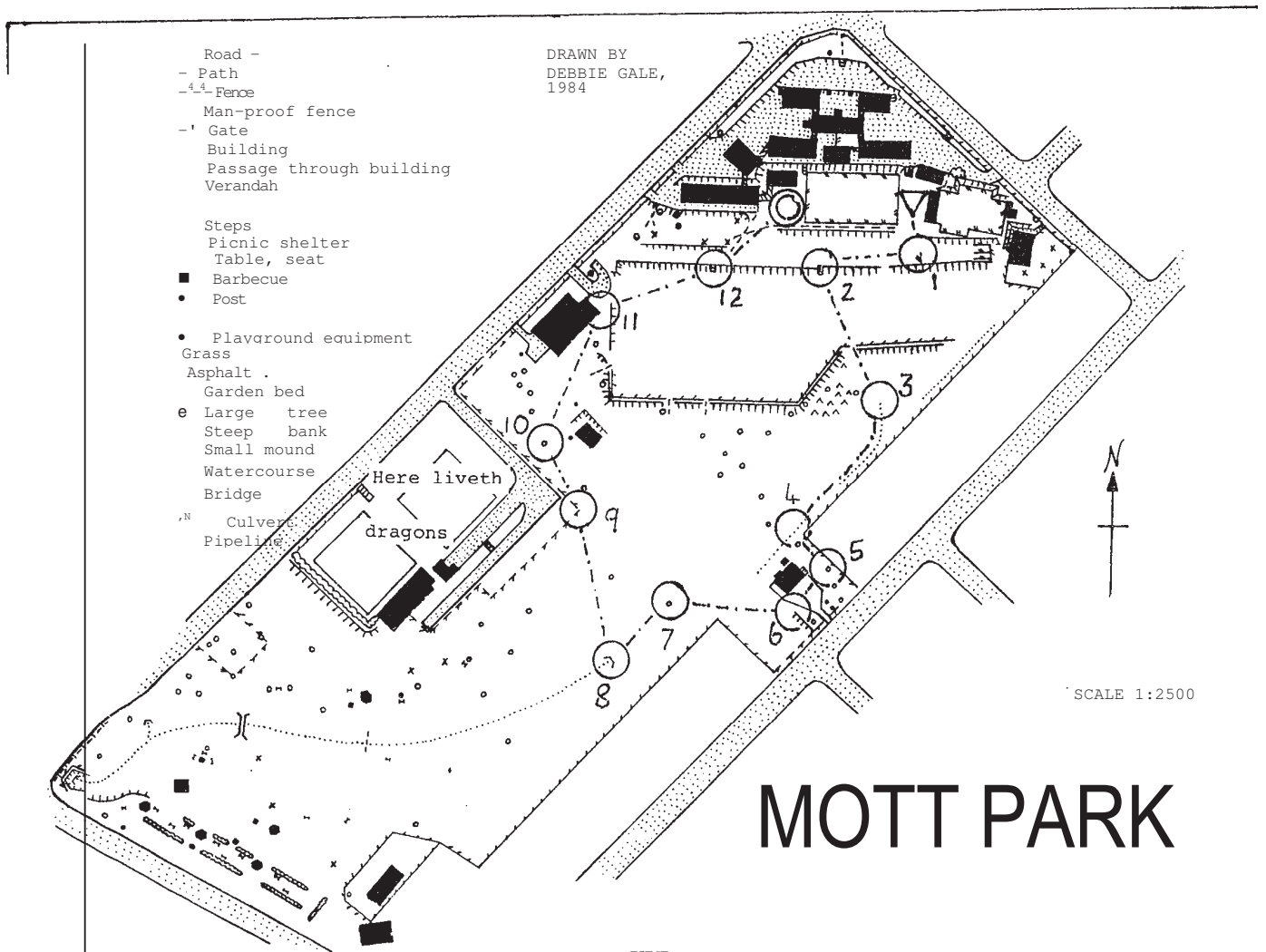
walk round the course. Stop frequently to check what is to the left, right, in front, behind, and that the features correspond to the map. At first direction change re-fold map if necessary, re-orientate and check thumbing. Check re-orientation of map at each subsequent change of direction.

Notes:

1. This can be combined with Activity 9 on use of map legend.
2. A compass can be carried to check the map orientation to north.

Extension Activities

3. Line events on courts, see Activity 19 and Follow the Leader, see Activity 22.



18	3D ORIENTEERING	4-6 7-9 10-12	R	I
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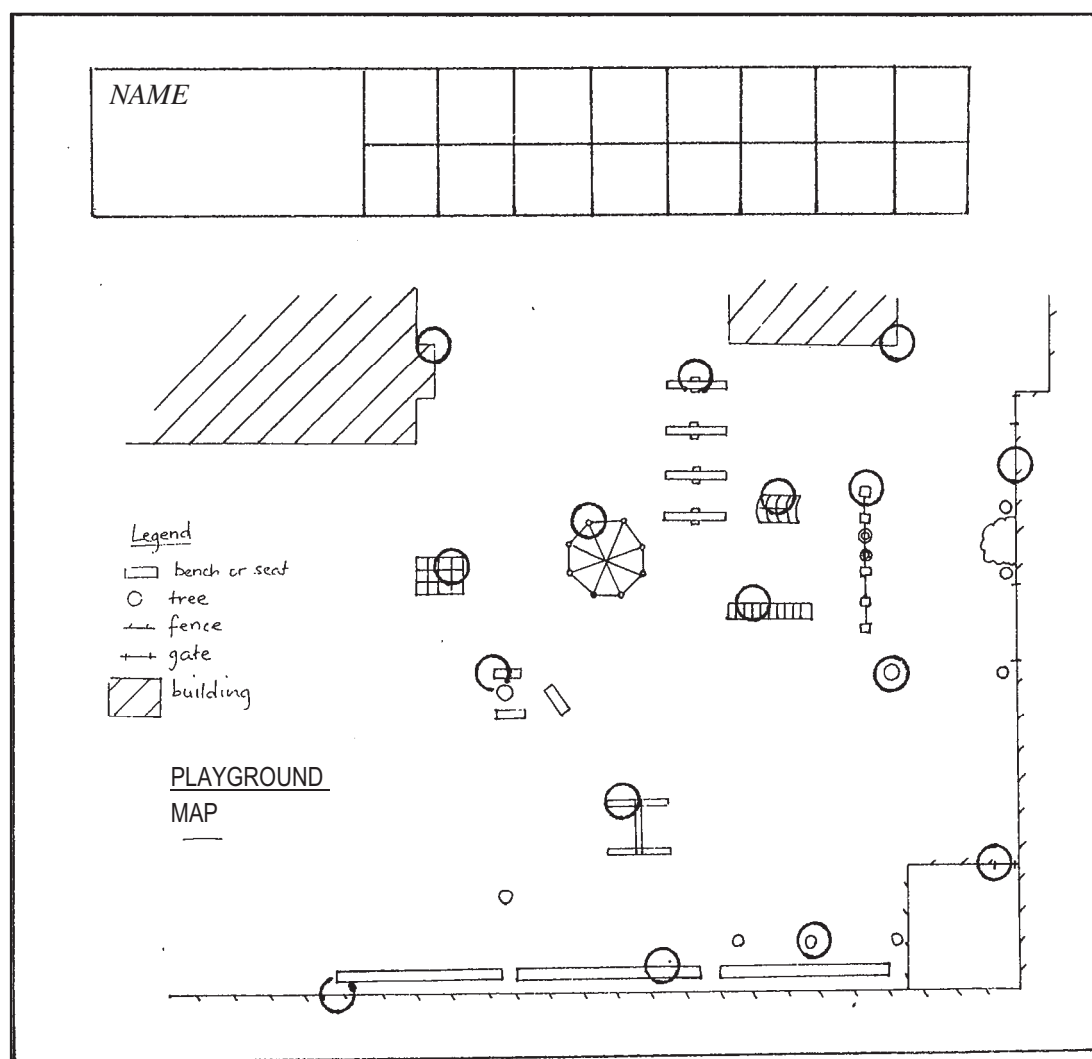
Aim: To introduce map reading and the sport of orienteering to older pupils.

Preparation: Draw a map of the area to be used, classroom, hall, playground area or courtyard. Add a legend. Place markers at any height and draw control circles on the map. Duplicate.

Activity: Hand out maps. Explain the centre of the circle marks the site and that it can be at any height (I have known the base of sink plug used ...). Give a set time for pupils to find as many control sites as possible and record control letters. Explain to pupils how to orientate the map before allowing them to start.

Notes:

1. It is important to tread a fine line between making the control sites fun, without introducing too big a 'chance' factor!
2. Young pupils should start with an exercise involving a fixed map then progress to this - see Activity 4.



19	LABYRINTHS	4-6 7-9 10-12	R	I
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Aim: To teach the pupils to orientate the map while following a route.

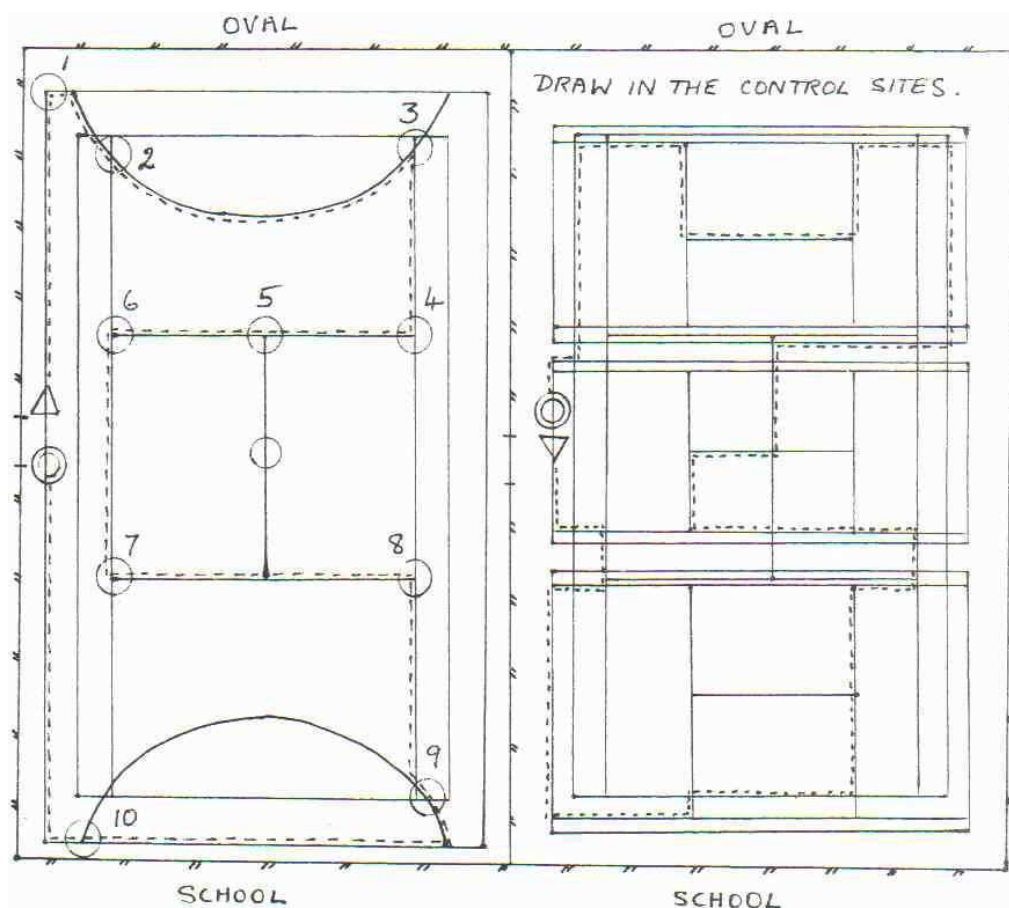
Preparation: Draw up a plan of the lines on courts. It is a help if several adjacent courts are used to accommodate a full class. Pre-mark a route to be followed and add control sites at various points. Use stickers to mark the control sites on the court.

Activity: Revise map orientation. Pupils follow the set route on the map, writing in the code letters by the corresponding control circle as they find them. As they finish the map on one court they move to another.

- Notes:
1. If no suitable markings are available taped labyrinths can be constructed on any suitable surface, or a simple adaptation of Gordon's Grid, see Activity 46.
 2. Red herrings (not on the correct line) may also be placed!
 3. Introduce the legend of the Minotaur - and offer the given line as the safe route out of the underground passages.

Extension Activity

4. Stickers can be placed on the courts along the route but not marked on the map. The route is followed from the map and the control circles must be marked on the map by the pupils as they reach each control sticker.

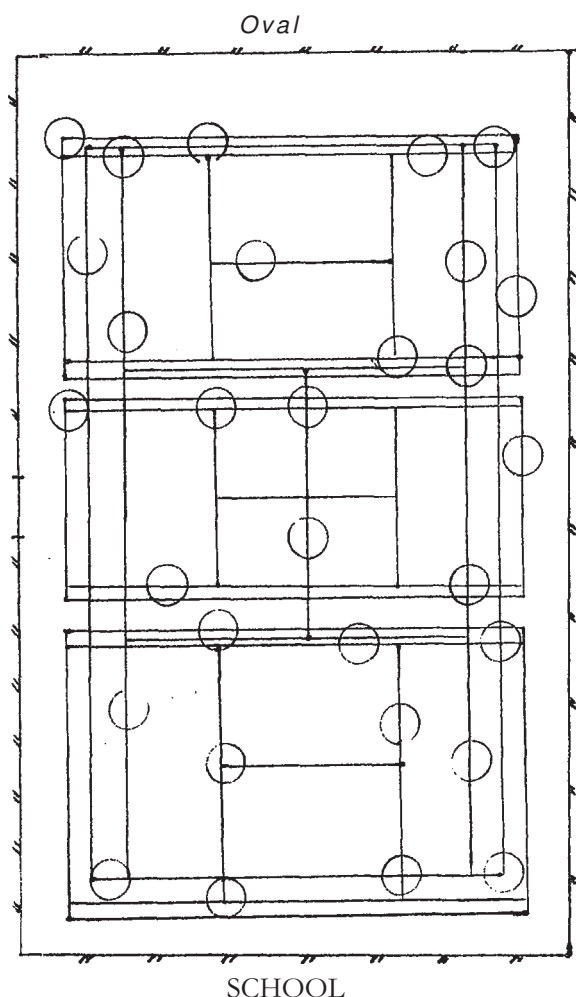


20	MUSICAL CONTROLS	4-6 7-9	R	I
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Aim: To give practice in locating controls quickly.

Preparation: Choose a small area such as playground equipment, hall or courts. Draw up a map and mark about thirty (30) control circles. (One for each class member.) Place small stickers at each control. Duplicate maps. Set up a music source or use a whistle.

Activity: Each pupil has a copy of the map. Pupils must walk or jog around the outside of the area. At the given signal they must run to find a control site. Only one person is allowed on each site. When all sites are occupied remove one or more stickers. Repeat. Those not finding a site can "drop out their maps" but remain in the jogging circle. It is not even necessary to drop people out - it can be fun if all remain in the game until the end, just with fewer sites to find each time. Some slight of hand in removing stickers is also justified!



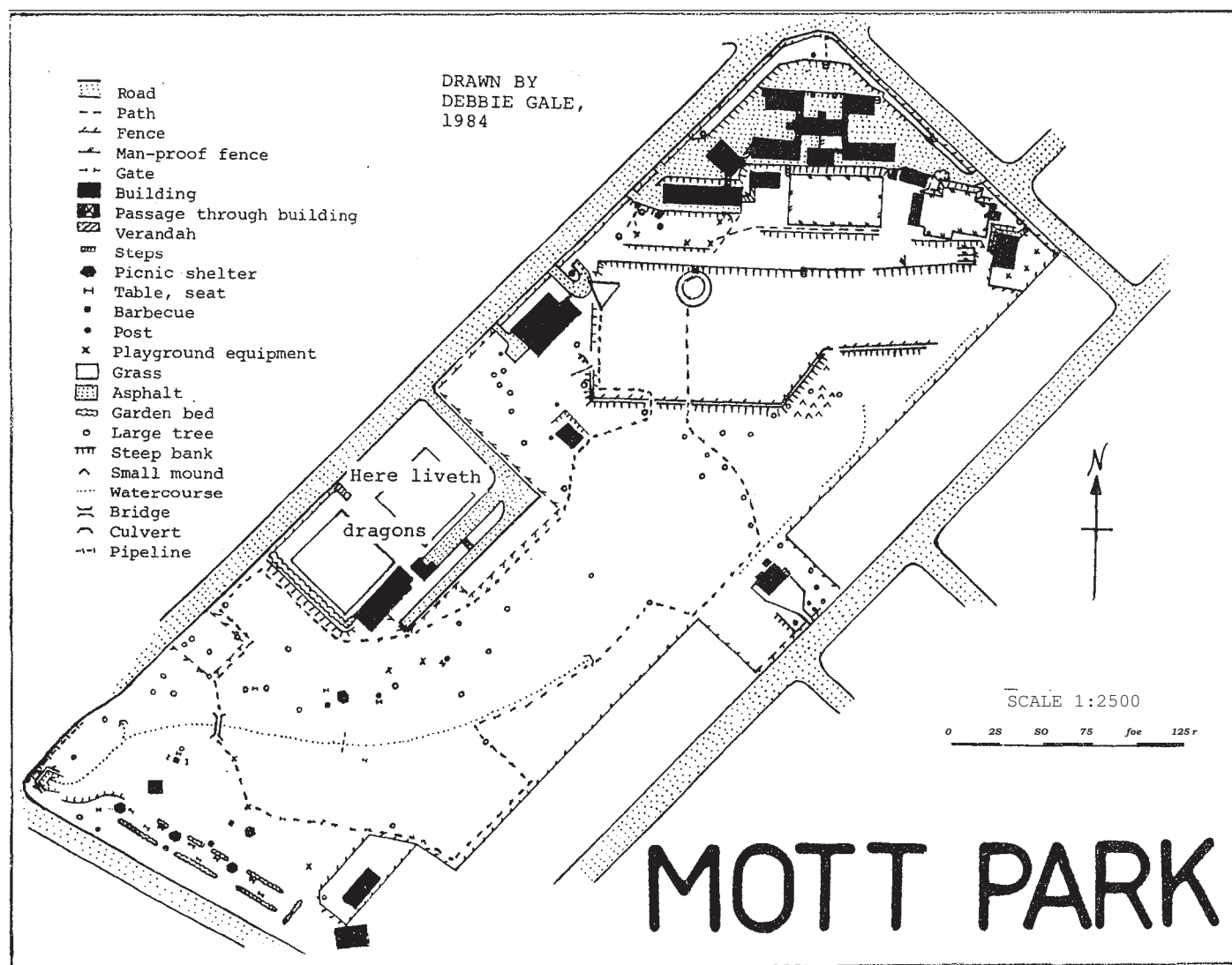
21	MARKED ROUTE ORIENTEERING	4-6 7-9 10-12	R E	I P
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Aim: To give practice in relating the map to the terrain.

Preparation: Design a course along handrails in the school grounds, local park, or bush of which a map is available. Hang up pegged streamers along the route. It must be possible to see one marker from another.

Activity: Pupils are given a blank map and are given help to locate the start. They follow the streamers and draw in their route on the map.

- Notes:
1. This is an excellent activity to introduce pupils to a new area without risk of losing them. It is also helpful to assess how well they are relating the map to the terrain.
 2. Control markers may be hung. The pupils then make the correct control site onto their map.
 3. This can be adapted to use on courts with a chalk line marking the route.
 - 4.



22	FOLLOW THE LEADER	4-6 7-9 10-12	E	G
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Aim: To give practice in relating map to terrain while remaining in a group and with minimum preparation.

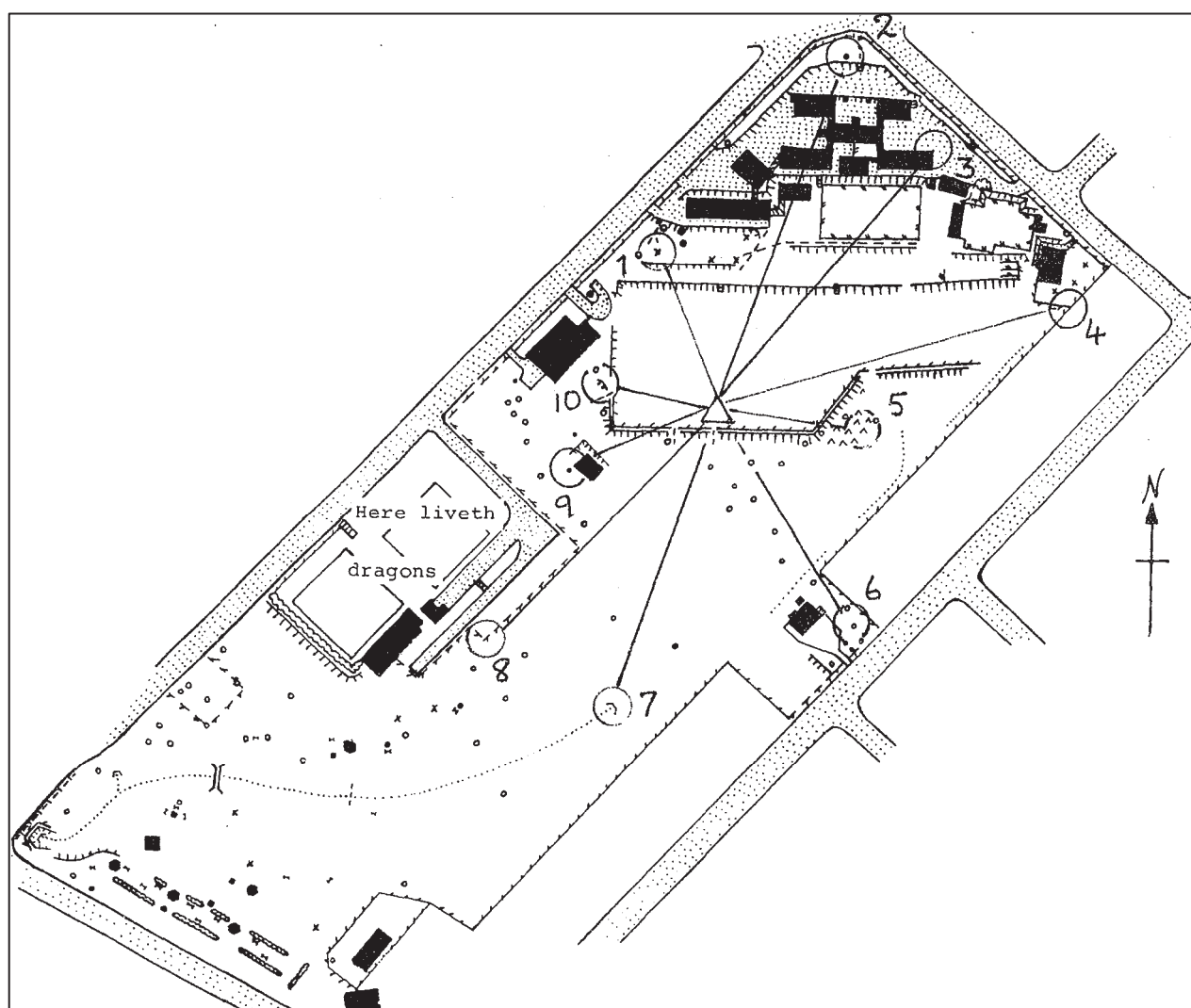
Preparation: Only map duplication if necessary.

Activity: Pupils are given a map and walked to the start. Help is given to locate the start. The teacher leads off, and the pupils must try to follow where they are going on the map. After some distance the teacher stops and the pupils must show where they are on the map. Pupils can take turns to lead.

Notes: 1. This is a useful activity for introducing pupils to more detailed maps or an unfamiliar area

23	STAR ORIENTEERING	4-6	7-9	R E	I P
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- Aim:** To give practice in map reading and relating the map to terrain in a controlled situation.
- Preparation:** Design a course with each leg radiating from a central point. The legs should follow handrails and the control sites be clearly visible from the handrail. Prepare several master maps. Hang the control markers.
- Activity:** Pupils are given a map and given help to locate the start and mark in the triangle. Pupils are given a control number with which to start. They copy that control site onto their map from the master and then go to that control. After punching they return to the master map and choose another control site, and so on.



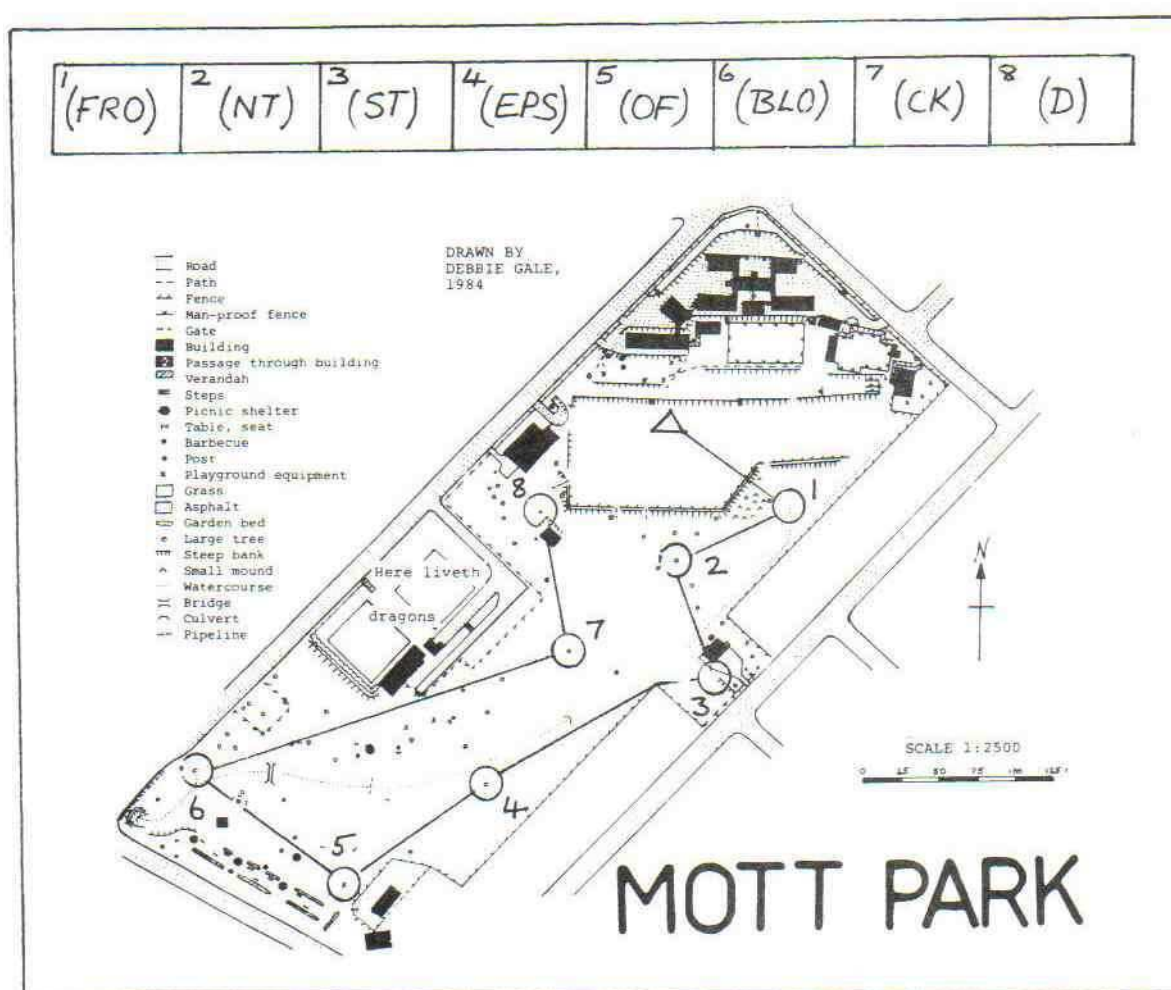
24	TREASURE HUNT ORIENTEERING	4-6 7-9	R E	I P
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Aim: To relate map to terrain while running a cross country course.

Preparation: Prepare a map of a familiar area and design and mark on control circles for a cross country course. Duplicate the maps (the controls must be taken in order). At each control site place a roll of tickets with a letter. When the pupils have visited all the control sites their tickets will spell out the location of the treasure. It helps if the tickets are also numbered!

Activity: Pupils are started at set intervals, receiving a map as they start. The finish is the location of the treasure.

Notes: 1. This can be adapted to use as a score event - the tickets are not numbered and the letters form an anagram which must be unscrambled to give the site of the treasure!

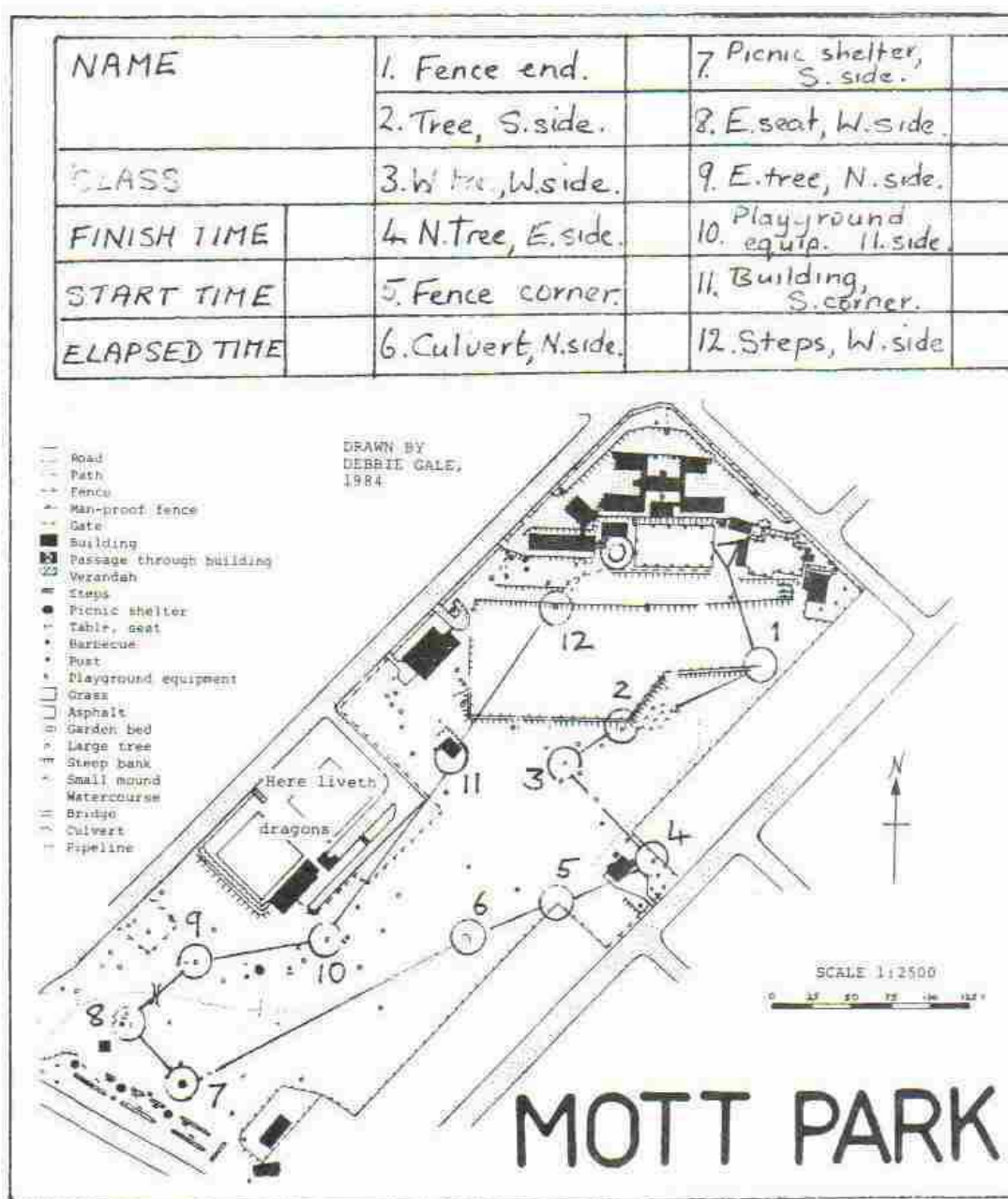


25	CROSS COUNTRY ORIENTEERING	4-6 7-9 10-12	E	I P
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Aim: Practice at relating map to terrain. This is the 'classic' orienteering event.

Preparation: Design a course suitable to the ability of the pupils, with plenty of controls. Avoid dog legs. Hang control markers. Pre-mark the maps or draw master maps (these can be used easily as the start is staggered).

Activity: Stress the need for the pupils to visit the controls in the correct order. When they have marked their map they can be started at intervals of one (1) or two (2) minutes. Times may be recorded if wished, finish times noted and elapsed time worked



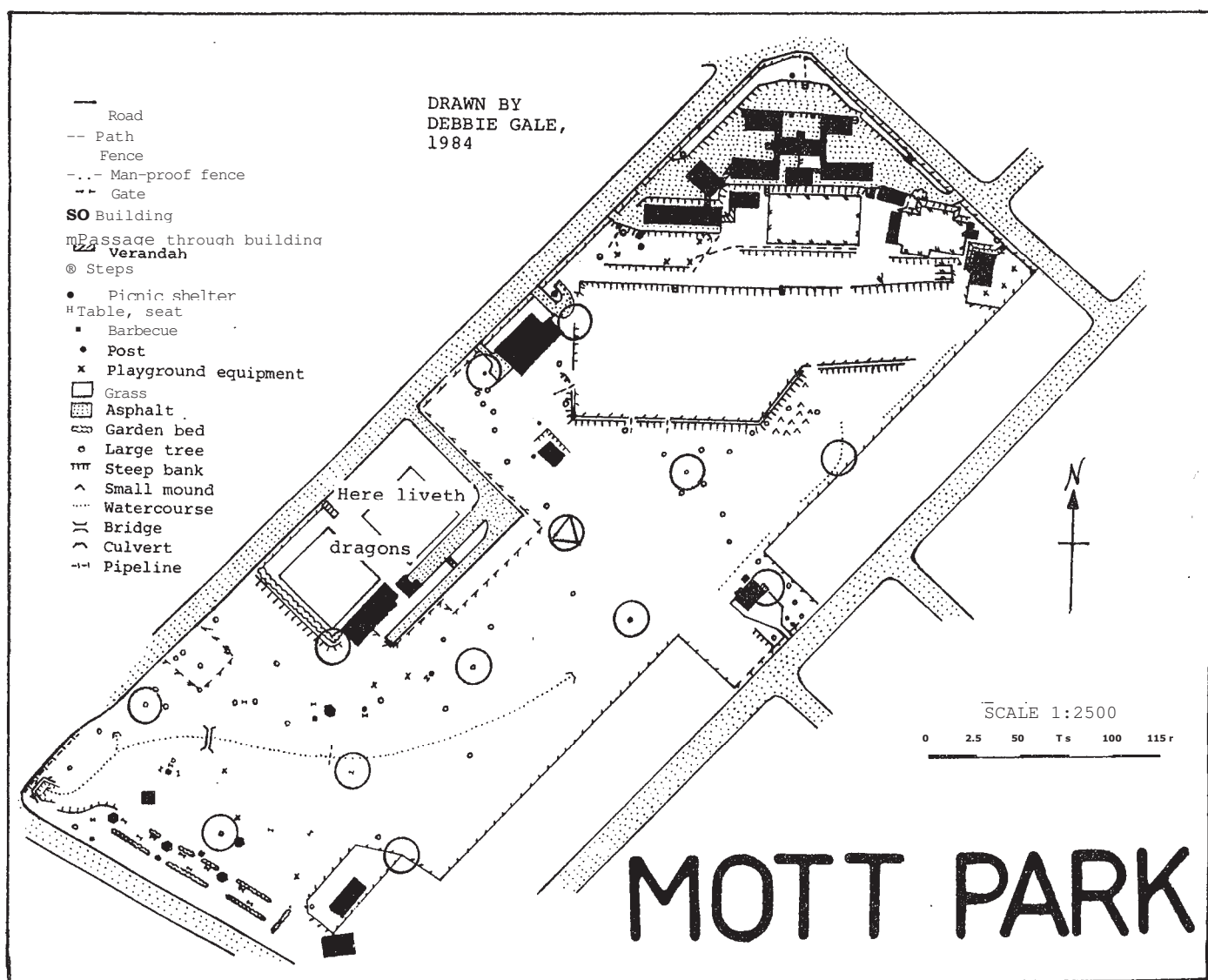
26	SCATTER ORIENTEERING	4-6 7-9 10-12	E	I P G
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Aim: To give practice in relating map to terrain in order to find the controls.

Preparation: In this event all the controls must be visited but in any order. Choose control locations around the start area so that there is no obvious best route to follow. Hang the controls and pre-mark the maps.

Activity: Remind the pupils that they must find all the controls but can do so in any order. A mass start can be used. If required pupils can be designated a first control to ensure the group scatter.

Notes: 1. If a large number of controls are placed this can be a group activity with each group having to decide who visits each control. Extra maps must be available.



27	SCORE ORIENTEERING	4-6 7-9 10-12	R E	I P
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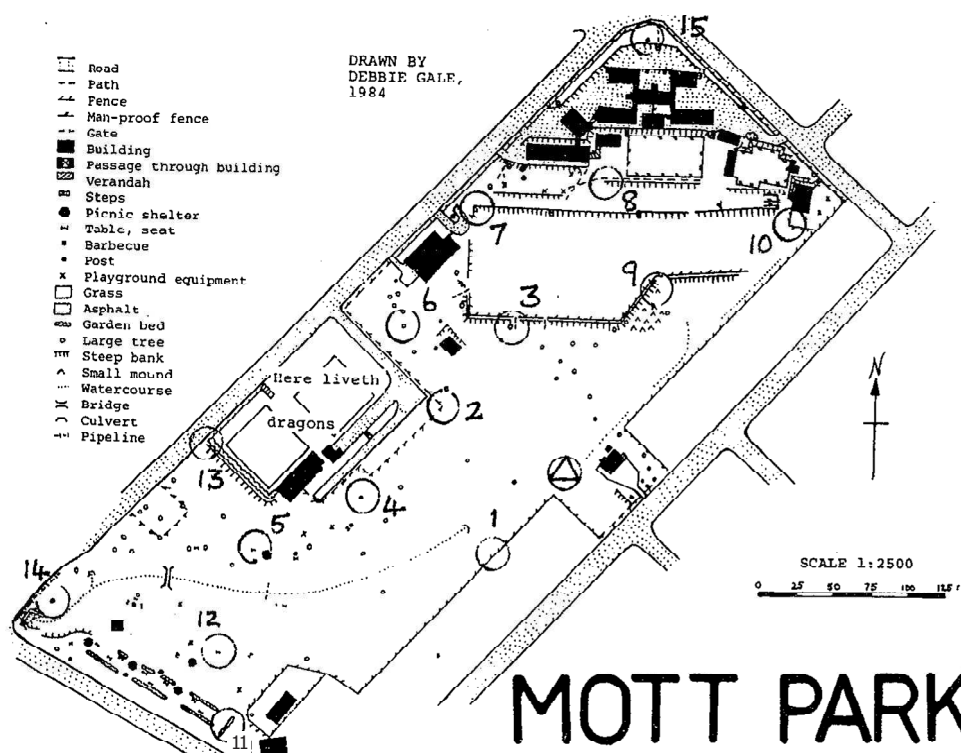
Aim: Practice at relating map to terrain while under pressure of time.

Preparation: On the map of the area to be used choose control sites of varying levels of difficulty, using the following guidelines:

- determine the time allowed for the event.
- the number of controls and their sitting should be such that it is impossible to reach all the controls in the time allowed.
- each control is given a points value according to the degree of difficulty, the distance from the start and finish and the distance from other controls. Often the points are in multiples of five (5) or ten (10).
- pre-mark the maps and prepare description sheets which also
- give the points value of the controls. Set out the control markers.

Activity: The event is explained and a map placed face down for each pupil. A mass start is used. Severe penalties are given for every minute over the time limit, for example - five (5) points per minute. The pupil with the highest adjusted score wins.

Notes: 1. It is necessary for pupils to have a watch. This type of competition avoids the problems of pupils having to wait around for a long time at the start or finish and it ensures all pupils are back by a set time.



1	5		9	10
2	5		10	10
3	5		11	15
4	10		12	15
5	10		13	15
6	10		14	20
7	10		15	20
8	10		TOTAL POINTS	
TIME				
PENALTIES				
SCORE				

28	LINE ORIENTEERING	4-6 7-9 10-12	RE	I	P G
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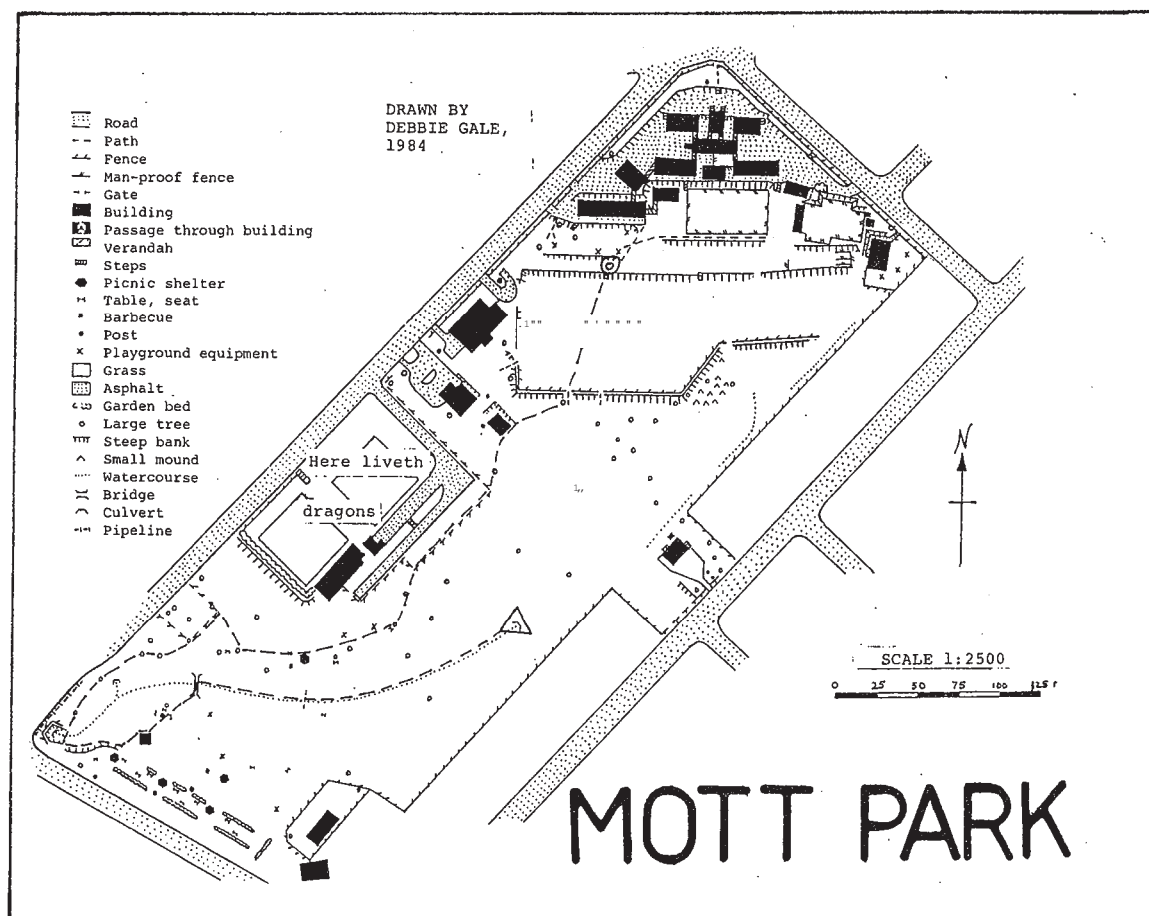
Aim: To give practice in relating map to terrain in order to follow a set route marked as a line on the map.

Preparation: In this event control sites are chosen on the line, but not marked on the map. They can only be located by exactly following the line, as marked on the map. The route should be matched carefully to the ability of the pupils using handrails all the way for the less experienced groups. Hang the control markers. Pre-marked maps are preferable as the line may be incorrectly copied from the master.

Activity: Explain that the line marked on the map must be followed exactly in order to find the control markers. A staggered start is used.

Notes:

1. This is a natural extension of Activity 21, Marked Route Orienteering.
2. Activity 55, Contour Line Orienteering, is a hard extension of this activity.
3. Pupils can be asked to draw the location of the control circles on to their map.
4. Red herring controls (near but not on the line) may be hung as well as correctly hung markers.

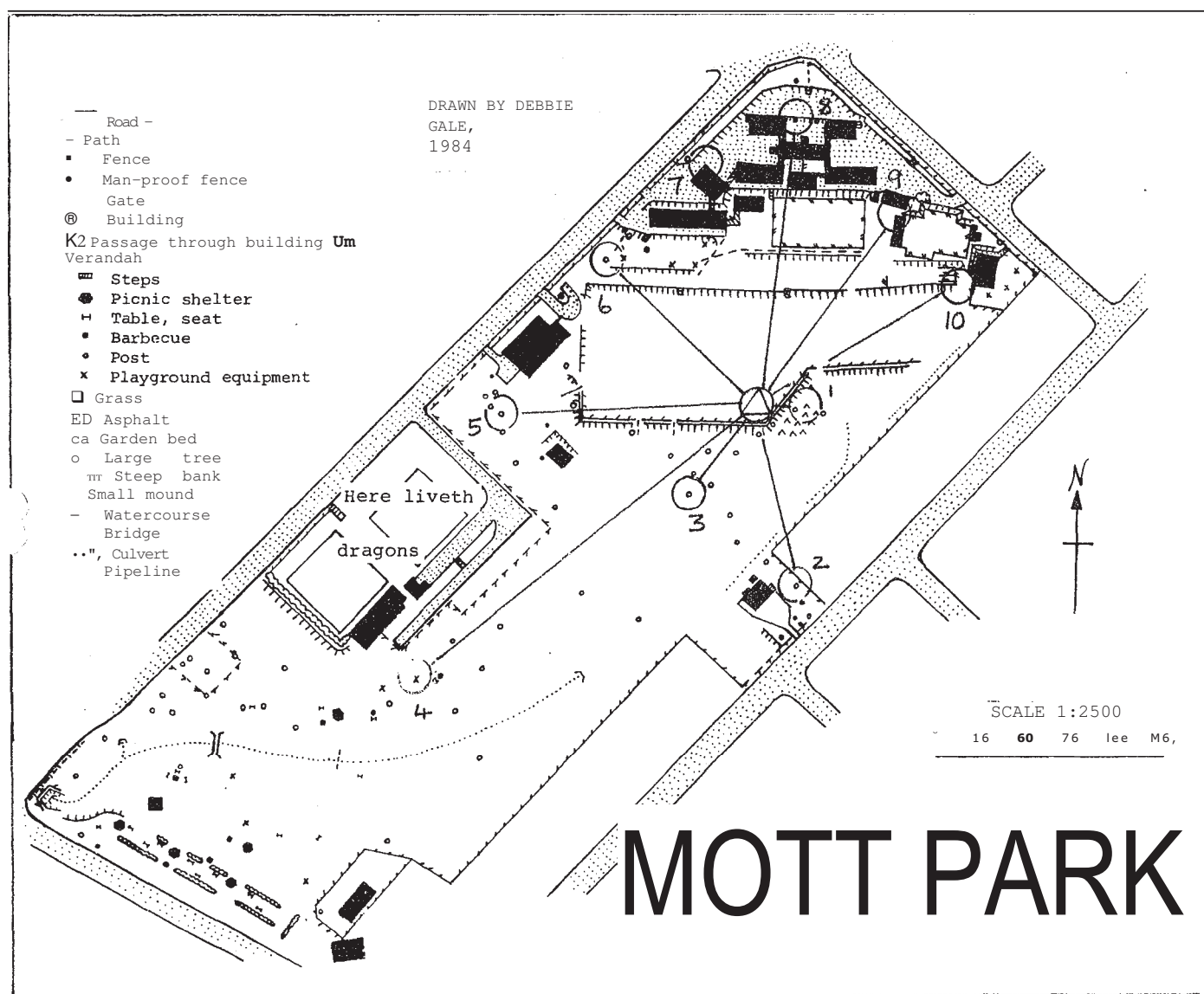


29	MAP MEMORY STAR EVENT	4-6 7-9 10-12	R E	I
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Aim: To practice scanning, reading and memorizing the map and relating the memorized image to the terrain.

Preparation: Choose a central start area with controls radiating from the start. Pre-mark about six (6) master maps. The control sites should not be visible from the start and the legs up to 500 metres in length. Set out the control markers.

Activity: Pupils are divided into groups according to the number of master maps. Each person in the group is given a control number with which to start to avoid too much following. (Each master can also have a different combination of control sites!) Individuals have to study the map, then go to the control, punch and return to the map to look at the details for the next control.



30	MAP MEMORY CROSS COUNTRY EVENT	4-6 7-9 10-12	E	I P
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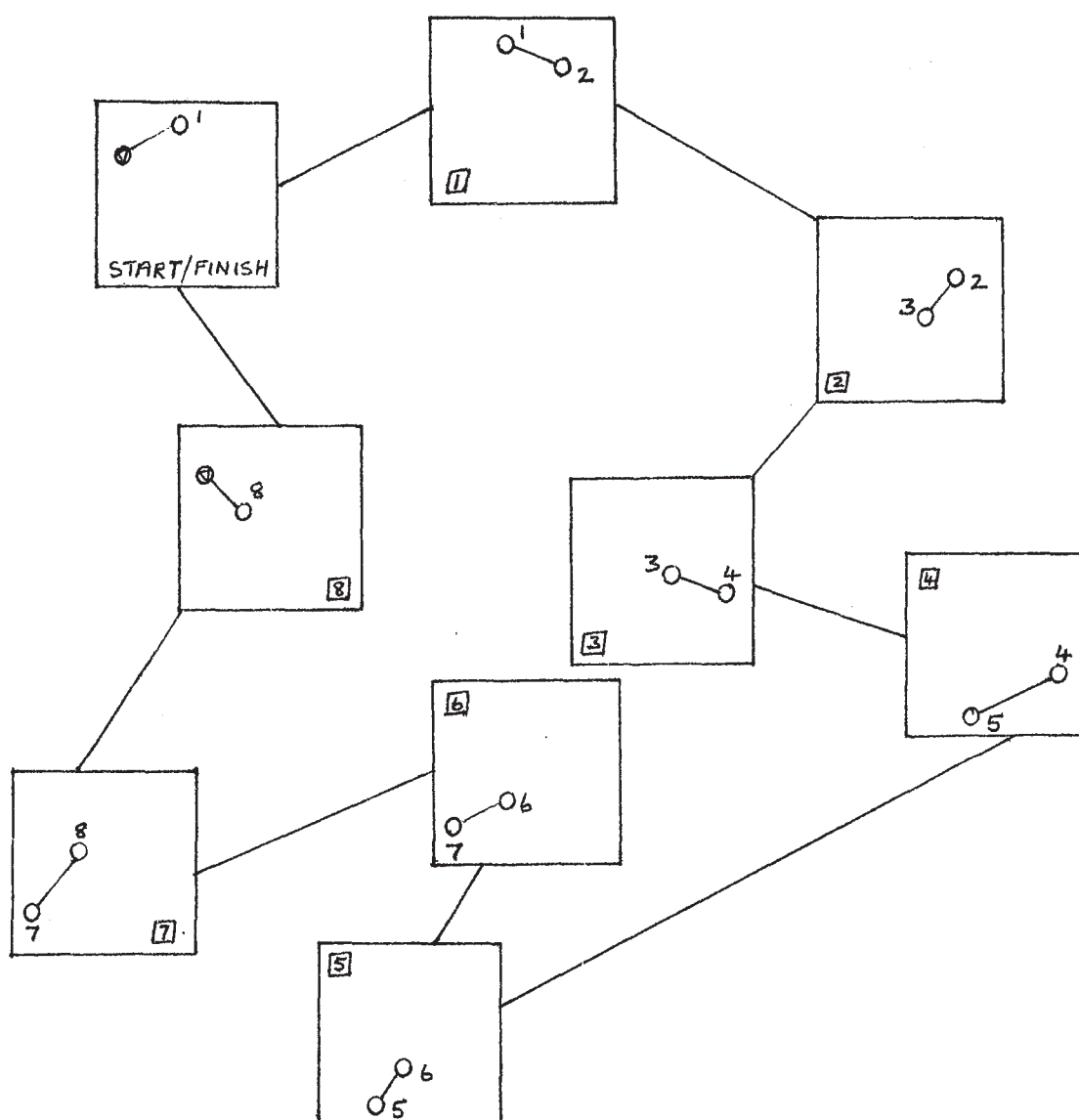
Aim: To practice scanning, reading and memorizing the map and relating the memorized image to the terrain.

Preparation: Choose a safe area with a well defined boundary. Design a course using handrails and easily found control features.

On one (1) map draw the first leg, on another the second and so on. Walk the course but instead of hanging markers post the relevant map - in a plastic cover in case of rain! The first leg should have multiple copies posted at the start.

Activity: The set up is explained to the students. A staggered start is used. Pupils can be timed if wished.

- Notes:
1. A fun activity for an area with which students are already very familiar.
 2. Useful when there are not enough maps for individual use.
 3. It is not suitable for unfamiliar terrain unless there is some easily visible locating feature to return to if lost. Remember the pupils are not carrying a map.



31	TRIVIA OR PROJECT ORIENTEERING	4-6	7-9	10-12	R E	I P G
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Aim: To give practice in relating the map to the terrain. Many more specific aims can utilise this approach.

Preparation: Take a walk through the area to be used noting distinctive features, from letters on a post, to the colour of playground equipment (for trivia orienteering) to the type of bark, species of tree, type of landform, historical importance, etc. (for project orienteering). Design a course using these features. The control card can pose a question at each feature. No markers need be hung. Duplicate maps and control cards.

Activity: Each pupil is given a map with the course and the control card. Stress the need for a pen or pencil and explain that each question can be answered when the correct feature is reached. This course may be cross country, scatter or score.

- Notes:**
1. This approach is useful as the necessary preparation can be done in advance, there is no need to hang markers.
 2. Project orienteering can be used to designate sites visited for field work.

Name:		Class
Control	Control Question	Answer
1	How many trunks has this tree?	
2	What are the white letters on this post?	
3	Copy the name of the species of this tree	
4	How many 'E's" are there on this sign	
5	What colour is the gate painted?	
6	How many steps are there?	
7	How many benches are there in the picnic shelter?	
8	What is now allowed here?	

32	HANG THE CONTROLS	4-6	7-9	10-12	R E	G
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Aim: Practice in relating the map to the terrain while setting up and running a teacher designed course.

Preparation: Prepare a map of the area to be used and mark and number twenty-four (24) control circles.

Duplicate the map.

Prepare six (6) cards as follows:

A	4	18	13	11

Control No.

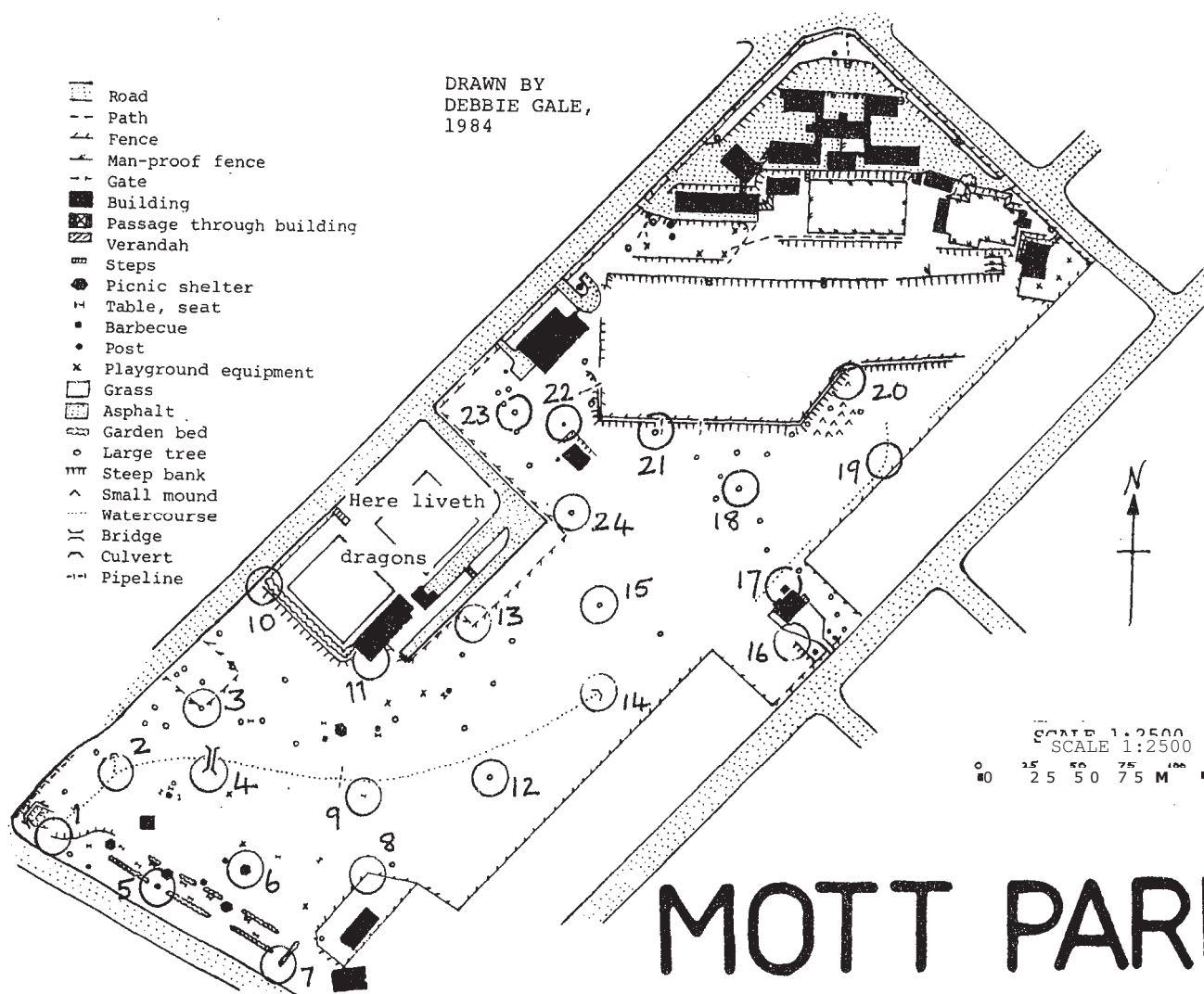
Control Code

B	1	7	23	10

Activity: Each, group receives a map, a card and four (4) markers which they proceed to hang. Groups then swap cards and run the other courses. On the last run, markers can be collected in.

Notes:

1. In a small area the controls on each card may be widely scattered. In a large area it is better to have the controls allotted to one group in a more compact area.
2. Similar in idea to Activity 33.



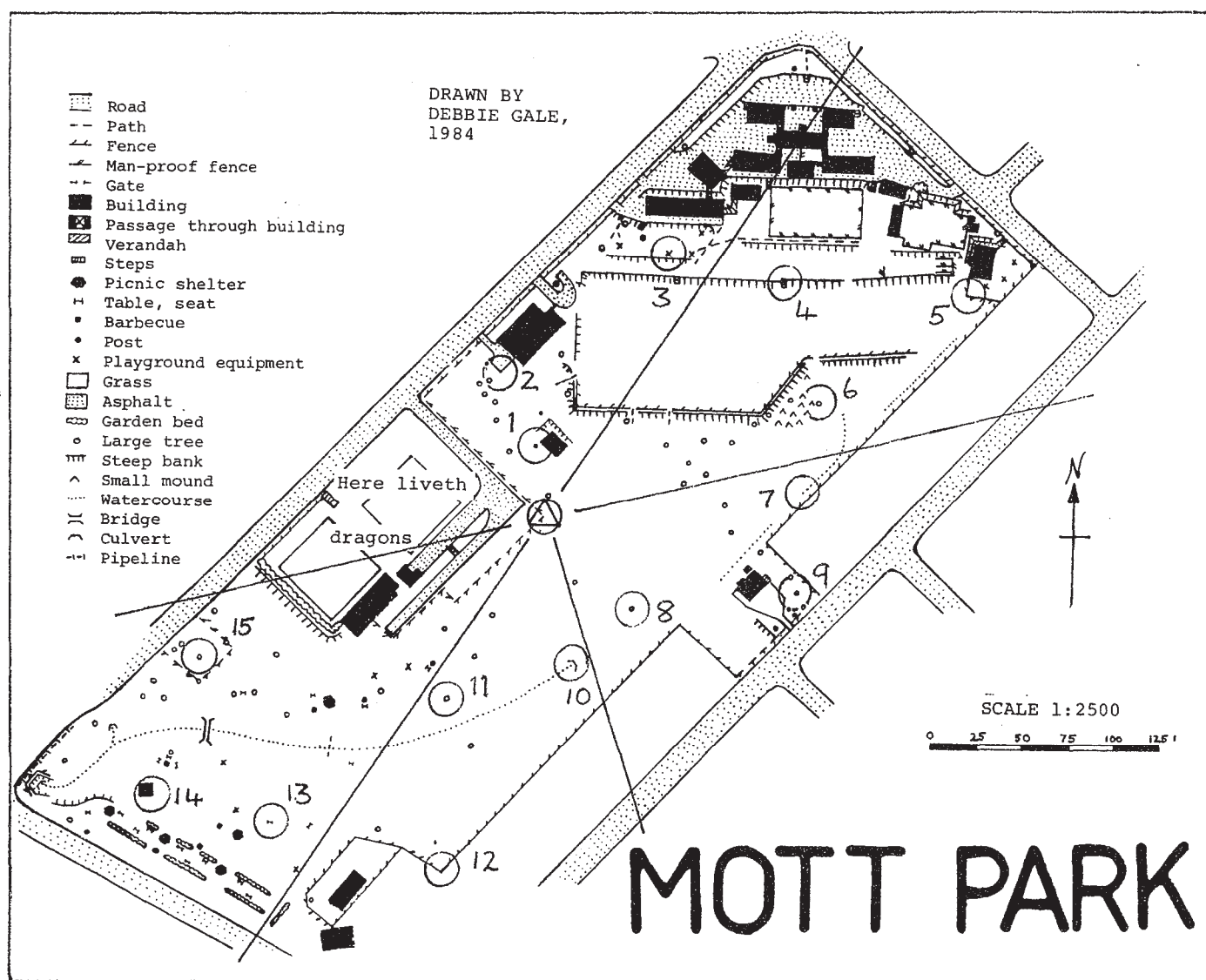
33	A PIECE OF CAKE	4-6 7-9 10-12	R E	G
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Aim: To give practice in relating the map to the terrain while setting up, then running, an orienteering course.

Preparation: Divide the map of the area to be used into sections radiating from a central point, the start, one section for each group. Draw on circles for control sites making sure there are the same number of circles in each sector, for example three (3). Pre-mark one (1) map for each group. These maps become the master maps for the score event.

Activity: The class is divided into groups, the same number as there are sectors on the map. Each group receives a map and three (3) markers and is allotted a sector. The group hangs their markers and punches those controls. A score event is then run where individuals must try and punch as many other controls as possible in the time allowed.

Notes: 1. Similar in idea to Activity 32.



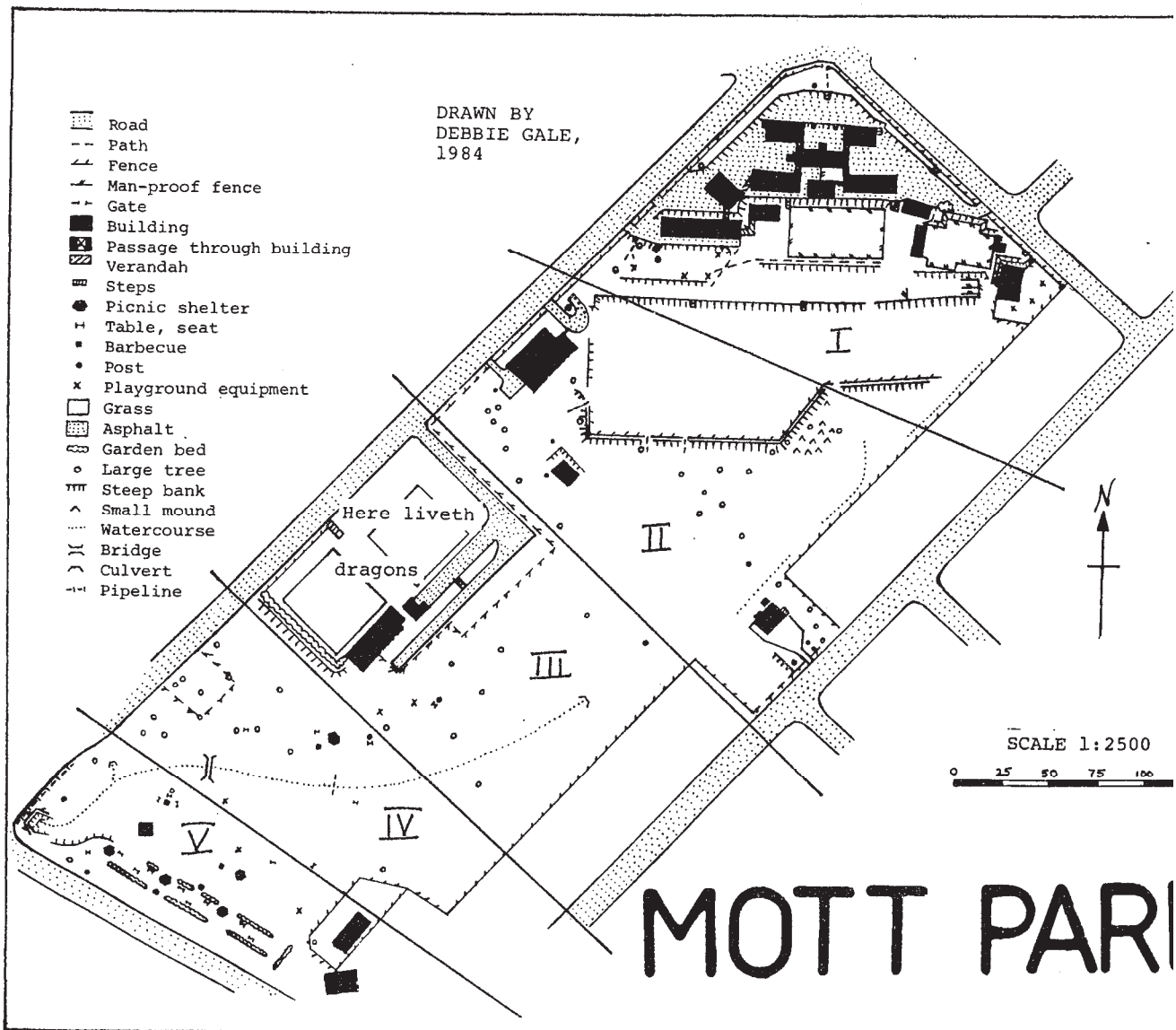
34	DESIGN A COURSE	4-6 7-9 10-12	R E	G
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Aim: Practice in relating map to terrain while setting up and running an orienteering course.

Preparation: Prepare a map of the area to be used, e.g. classroom, hall, playground or park and divide it into four (4) to six (6) areas.

Duplicate the maps..

Activity: Each group is allotted one area and given a certain time to place a given number of markers. They then mark the circles to show their chosen sites on their map. Groups swap maps and try one another's courses commenting on the accuracy of marker placement!



35	REFERENCE SYSTEM ORIENTEERING	4-6 7-9 10-12	RE	I P G
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Aim: To give practice in using reference systems.

Preparation: Choose an area suitable to the ages of the pupils of which a map is available and design a cross country scatter or score event. On the map superimpose a suitable grid. (At etc., four (4) figure, or six (6) figure references.) Instead of marking the control sites on the map, write out the grid reference of each control site on the control description list. It is important that the reference if correctly read will give the correct control site.

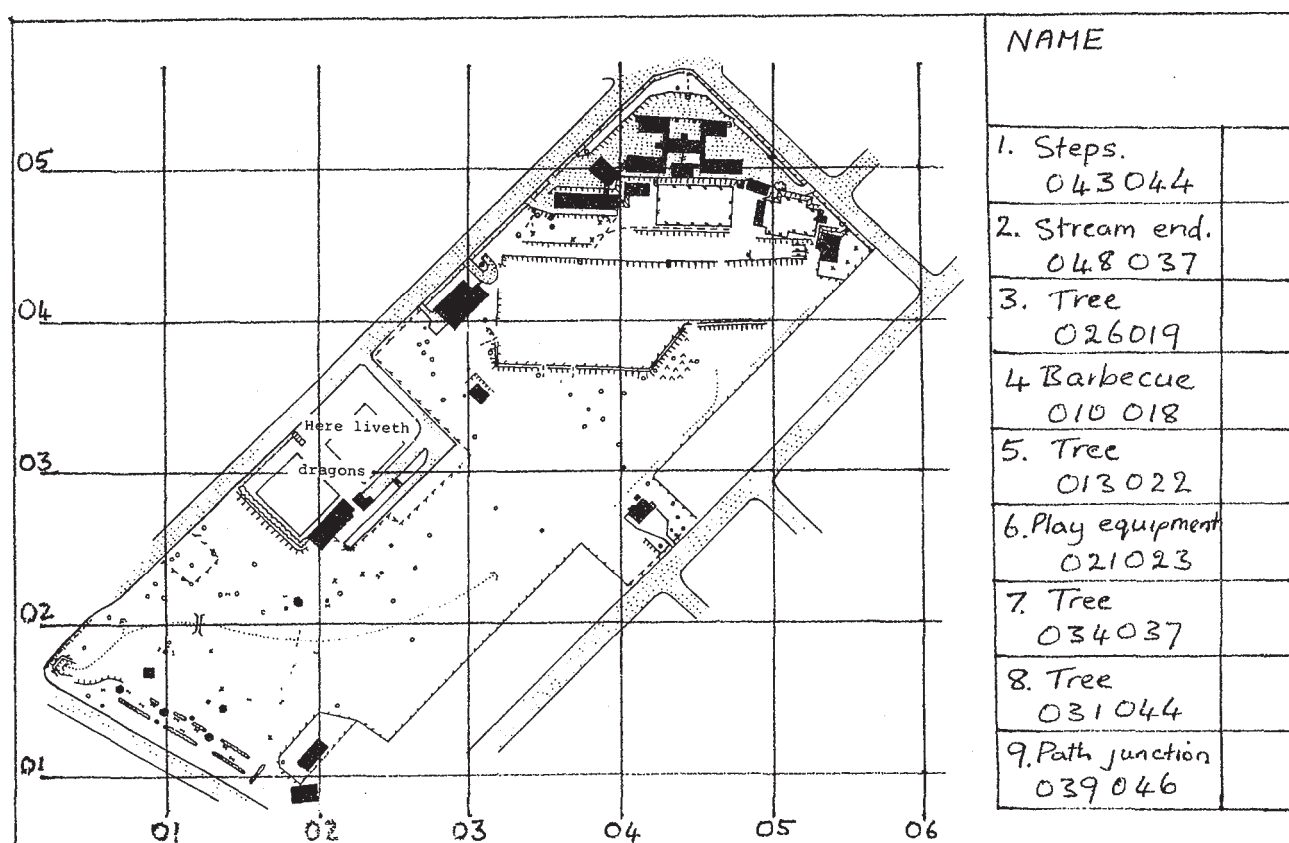
Activity: Reference systems are explained to the pupils. Each pupil receives a control description list and a blank map at the start. (Staggered if cross country, mass if score or scatter.) The pupils then must use the references to fix the control points before setting off to locate the sites in the terrain.

Notes:

1. This can be adapted to a relay game similar to the map symbol relay (Activity 6). Each runner has to locate one control circle on the map from the control description list which gives grid references.

Extension Activity

2. Older pupils can use Government topographic maps for this purpose. If they are using compasses they must have the difference between grid north and magnetic north explained.



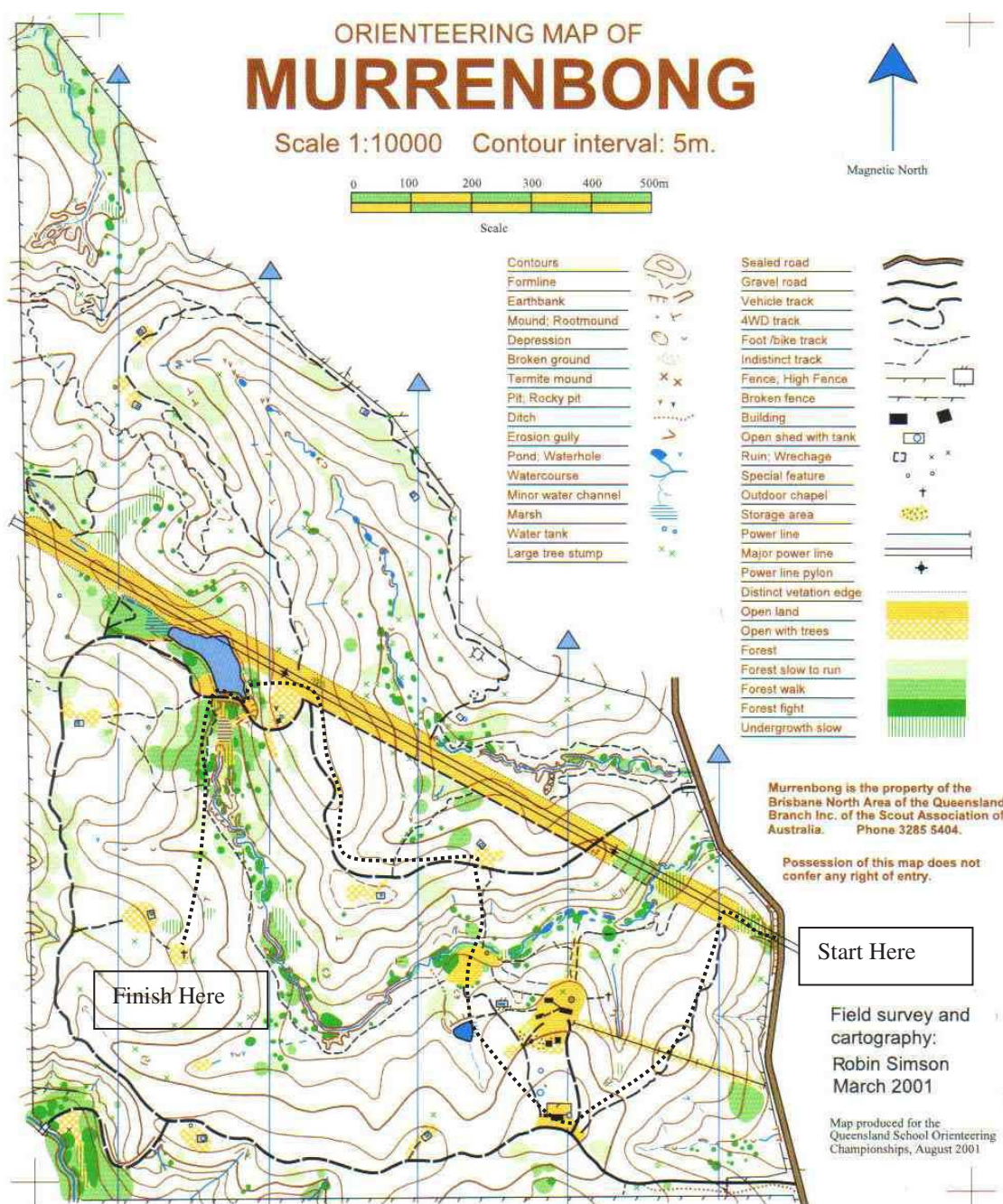
36	IMAGINERY JOURNEY	4-6 7-9 10-12.	T	I P G
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Aim: To give pupils practice in making the map 'come alive'.

Preparation: Mark a route on a set of maps.

Activity: Each pupil receives a map. They have to write a story which involves someone (or thing!) travelling that route and must incorporate accurate details of what they see along their way.

Notes: 1. Routes and maps can be of varying degree of difficulty.



37	THE CARDINAL POINTS	4-6 7-9	T	I
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Aim: To practice using the cardinal points.

Preparation: Prepare copies of the exercise sheets below. The students will require graph paper.

Activity: (1) Can you complete this exercise using graph paper? Start in the North-west corner.

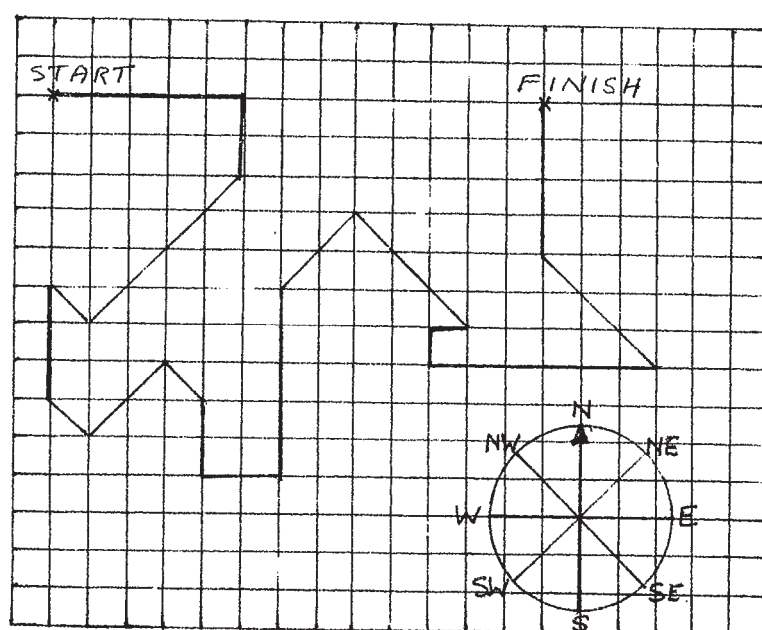
- | | |
|--------------------------|--------------------------|
| (a) 5 squares East | (h) 2 squares East |
| (b) 2 squares South | (i) 5 squares North |
| (c) 4 squares South-West | (1) 2 squares North-East |
| (d) 1 square North-West | (m) 3 squares South-East |
| (e) 3 squares South | (n) 1 square West |
| (f) 1 square South-East | (o) 1 square South |
| (g) 2 squares North-East | (p) 5 squares East |
| (h) 1 square South-East | (q) 3 squares North-West |
| (i) 2 squares South | (r) 4 squares North |

(2) What number does this produce?

Start near the North-West corner

- | | |
|-------------------------|--------------------------|
| (a) 1 square North-East | (e) 3 squares South-West |
| (b) 1 square East | (f) 1 square South |
| (c) 1 square South-East | (g) 3 squares East |
| (d) 1 square South | |

Notes: 1. Pupils draw their own shapes on the paper, write a list of instructions to produce them, and swap instructions with a neighbour.



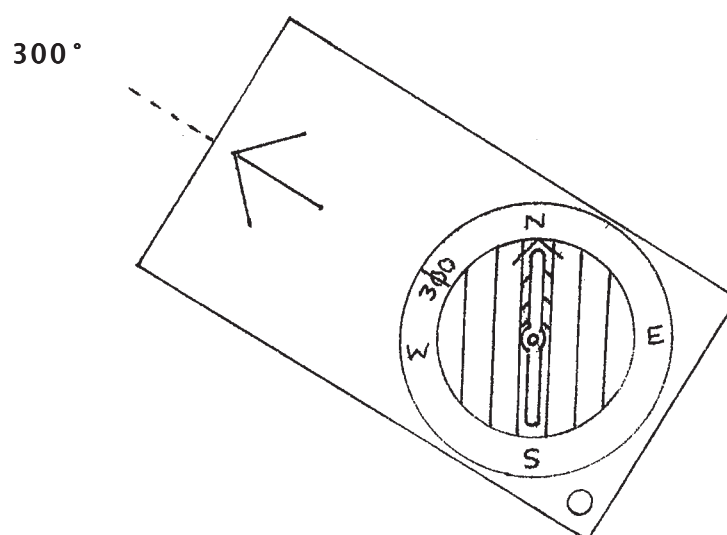
Aim: To give practice in setting a given bearing and locating that bearing in the terrain.

Preparation: None.

Activity: Each pupil is given a compass and its parts revised. A bearing is given. The pupils must set the bearing, orientate the compass to the bearing and face or point that way. Repeat with other bearings.

Notes: Extension Activity

4. Landscape bearings. This is similar to Activity 15 but in this case bearings are used to locate landmarks. Maps can be used to obtain the bearing if wished.



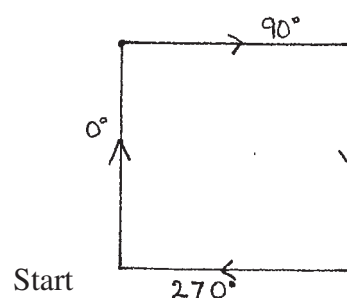
Aim: To introduce or give practice in setting and following a bearing.

Preparation: Prepare and duplicate individual exercise sheets or write up each exercise on a large piece of stiff card.

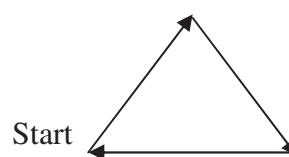
Activity: Each pupil has a compass and is shown how to dial a bearing, to orientate the compass to north and to sight onto a feature along the correct bearing. They then do the exercises, placing a small twig or coin at their start. E.g.:-

HUNT THE PENNY

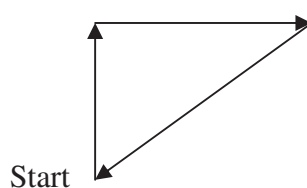
- A 5 paces at 90 deg (East)
 5 paces at 180 deg (South)
 5 paces at 270 dec (West)
 5 paces at 0 / 360 deg (North)



- B. 10 paces at 30 deg
 10 paces at 150 deg
 10 paces at 270 deg



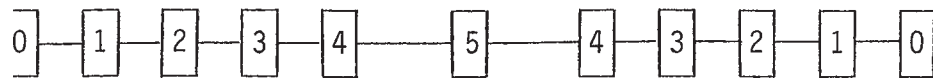
- c. 15 paces at 0 deg
 20 paces at 90 deg
 25 paces at 233 deg



40	FOLLOWING A BEARING	7-9	10-12	E	I
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Aim: To give practice in following a bearing.

Preparation: Slot score cards onto a tape as follows:



The length of the tape depends on the length of the leg and the skill level of the pupils. The minimum is half (i) the leg length.

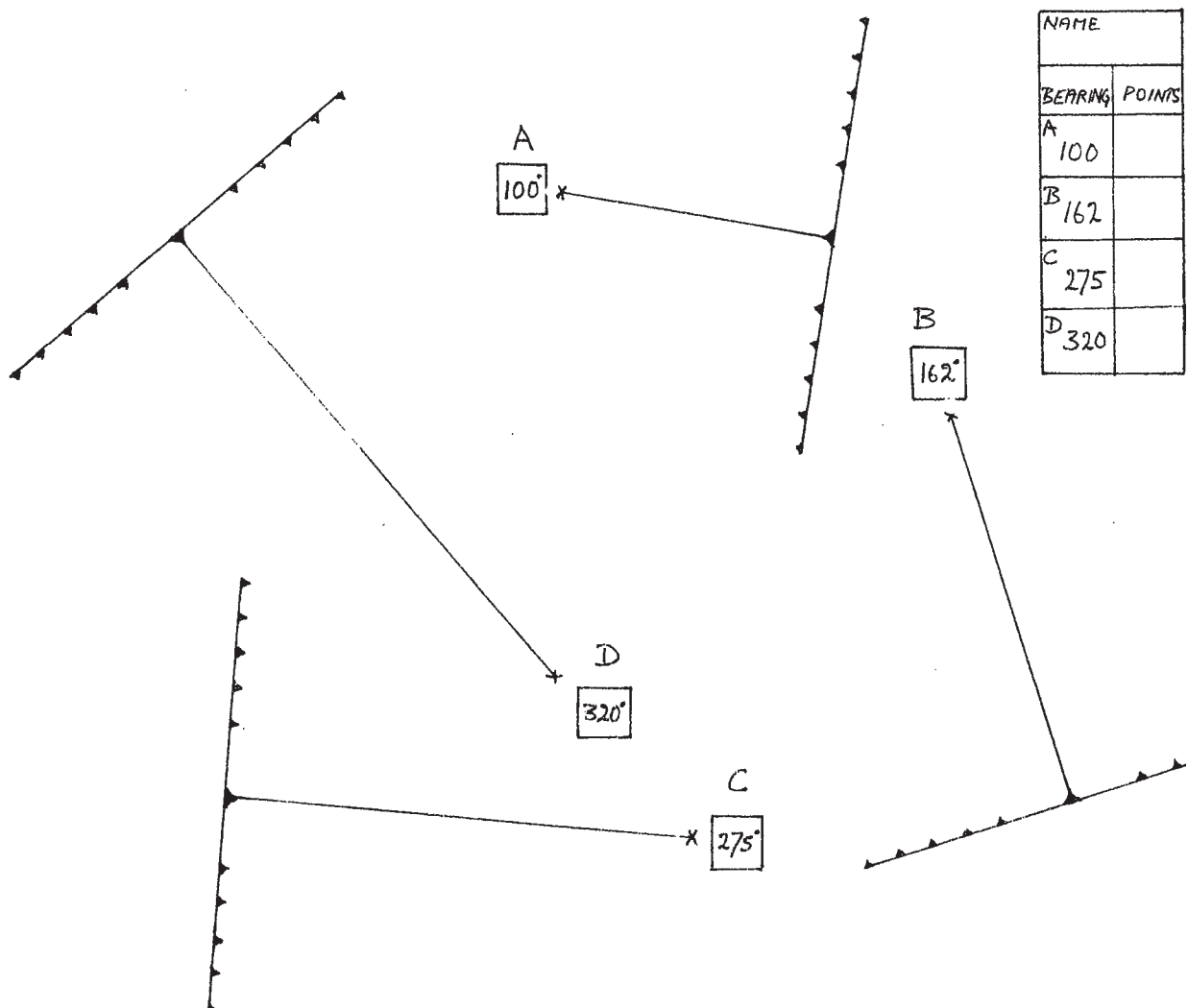
In an open area set up a card with a bearing written on it. Lay the score tape at right angles to, and centred on the correct bearing about fifty (50) metres from the card.

Repeat with different bearings and increasing the distance between card and tape.

Prepare a score card.

Activity: Each pupil is given a compass and a score card. Setting the compass and following a bearing by sighting onto a distant fixed object, is revised. Students start at the card, set the bearing given on the card and see how many points they score for accuracy.

Notes: 1. It helps to use a sighting compass to establish the position of the tape.



Aim: To give practice at taking bearings from a map.

Preparation: Duplicate copies of the exercise below.

Activity: Revise or introduce the parts of the Silva compass and how to take a bearing. Pupils record the bearing of each leg of the course.

Notes: 1. This can be turned into a relay race if required, the compass being used as the baton!

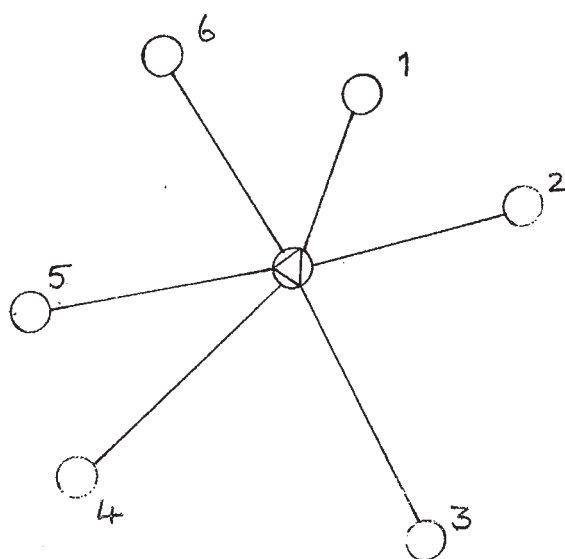
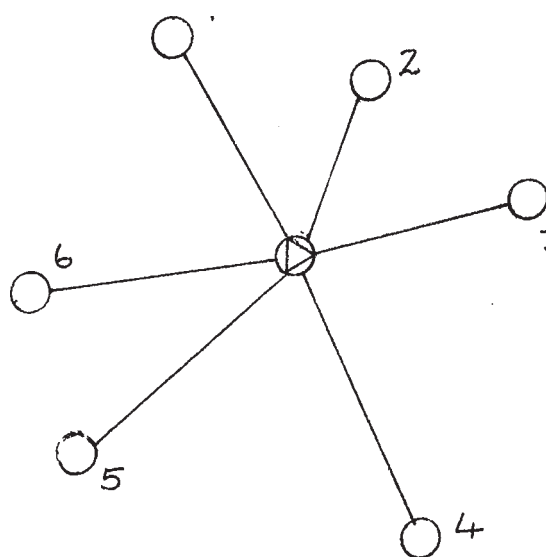
NAME _____		BEARINGS IN DEGREES	
		▷-1	
		1-2	
		2-3	
		3-4	
		4-5	
		5-6	
		6-7	
		7-8	
		8-9	
		9-10	
		10-11	
		11-12	
		12-13	
13-◯			

42	COMPASS BEARING STAR RELAY	7-9 10-12	E	G
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Aim: Give practice in taking a bearing from a map and following it in the terrain.

Preparation: Set out an orienteering course using about six (6) controls each leg radiating from one (1) feature. Mark up a map for each team numbering the controls in a different order.

Activity: Divide class into teams. The first team member takes the compass, runs to the map, takes the bearing to the first control, follows the bearing to the first control punches and runs back to hand the card and compass to the second team member who runs the second leg, etc.

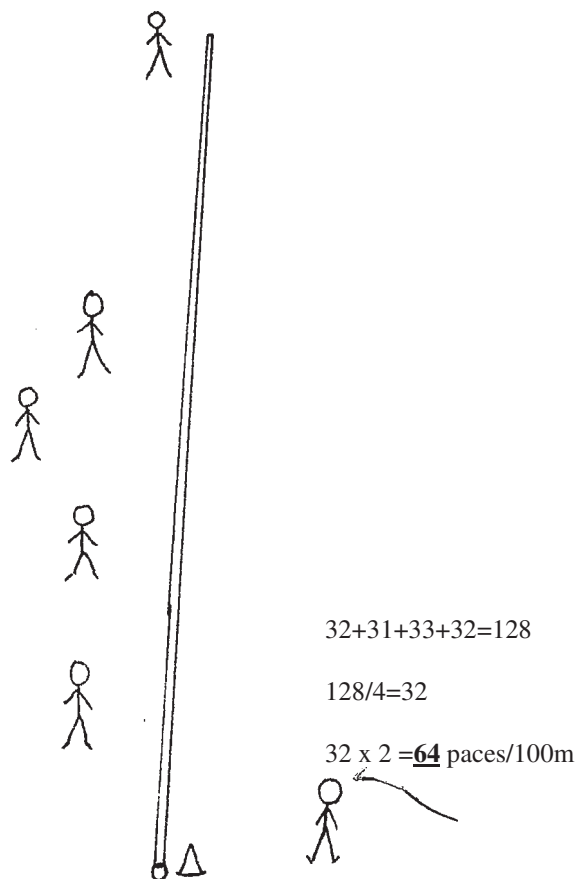


43	ESTABLISHING PACE COUNT	7-9 10-12	R	I
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Aim: To establish an individual's pace count for one hundred (100) metres.

Preparation: Measure out fifty (50) metres and place a clear marker at either end.

Activity: Pupils walk the fifty (50) metres three (3) or four (4) times. Each time they count the number of double paces they take, i.e. the number of times their right foot goes down. It is important to walk at normal pace not to stride. Each count is recorded, an average taken and the figure multiplied by two (2) to give the count for one hundred (100) metres. This figure is memorized.



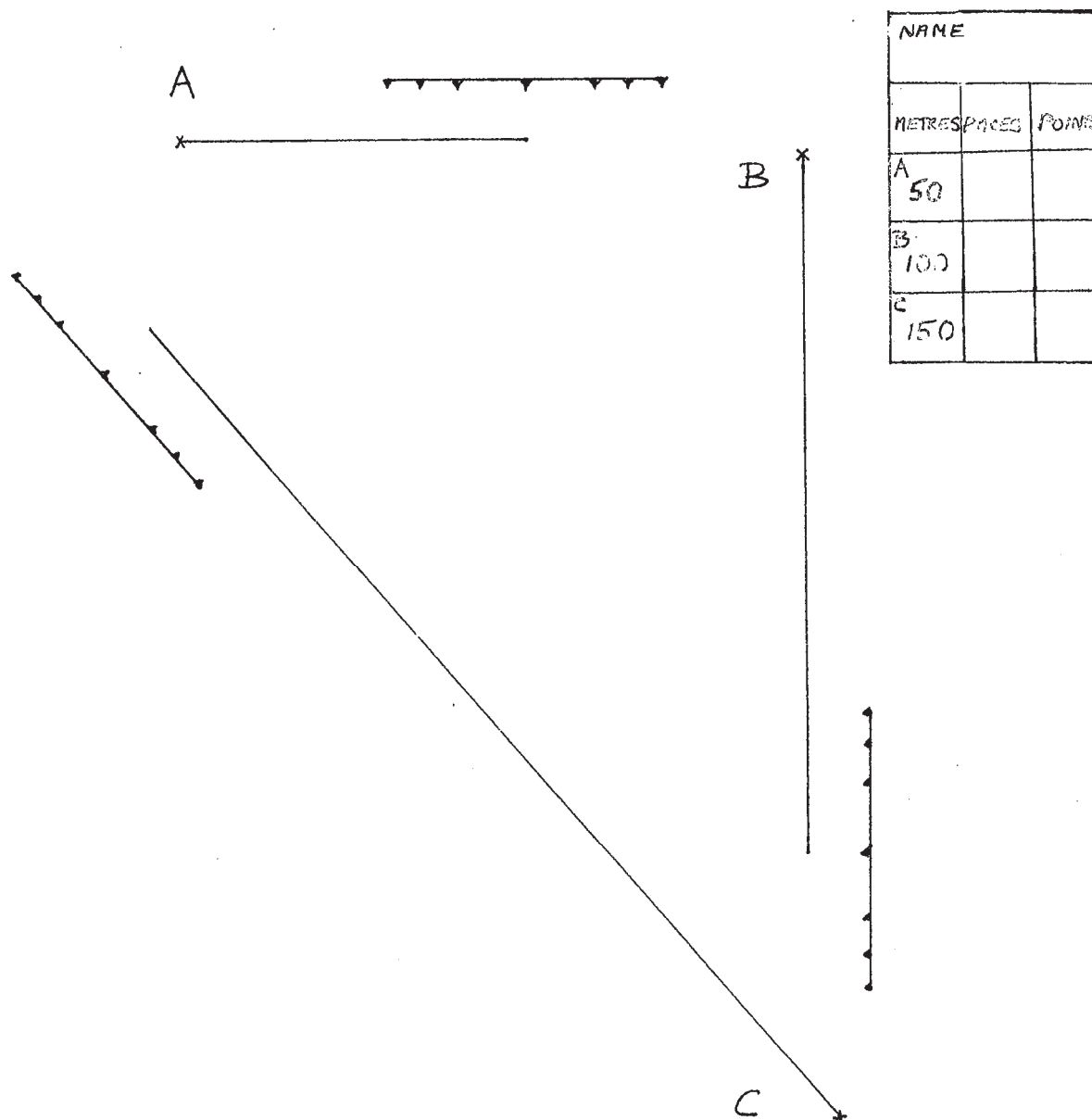
Aim: To give pupils practise in estimating distances by means of a pace count.

Preparation: None.

Activity: Pupils are lined up, told which direction to walk in, and given a distance to estimate by pacing. When they consider they have traveled the correct distance they stop. A tape is run out from the start line and the winner is judged. This can be repeated several times in different directions and increasing distances.

Notes: Extension Activity

1. A course similar to that used for Activity 39 can be set up. This time the marker cards are laid parallel to the route walked. Pupils can judge their own accuracy and record it on a score card if wished.



45	IMAGINERY MAZE	7-9	10-12	R E	I
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Aim: To give practice in the use of the compass and in the use of pacing to estimate distance accurately.

Preparation: Decide on a start point. Design a simple course using straight lines which can be traveled easily. Record the direction in degrees and the distance in metres for each leg. Duplicate this list. Mark the start and finish. Several mazes may be set up.

Activity: Pupils receive a list of bearings and distances together with their compass. A staggered start is used to separate pupils as they follow the directions round the maze. See who finishes closest to the finish!

Notes: 1. Pupils can design "Find the Treasure" courses for each other using just bearings and distance.

Extension Activity

2. A drawing of the maze can be used instead of the list of directions. North arrows and scale must be added.

△ - 1	96 deg	100 m
1 - 2	45 deg	50 m
2 - 3	350 deg	150 m
3 - 4	220 deg	50 m
4 - 5	180 deg	100 m
5 - 6	30 deg	75 m

46	GORDON'S GRID	7-9 10-12	R E	I
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Aim: To introduce older pupils to the concept of map orientation, use of the compass and pacing in one session.









Preparation: Place a series of markers, which may range from pegs to poles in a pattern similar to the example given below. The markers may carry codes if wished. Draw a plan of the pattern and underneath write out a series of exercises. The exercises should give a progression as follows:

- (i) use compass to orientate map.
- (ii) use compass to take a bearing
- (iii) use fifty (50) metres distance to establish pacing count.
- (iv) use scale to check pacing count around course.

Activity: The various skills are explained and the exercise sheet handed out to practise. If necessary each skill can be explained separately and the relevant exercise then carried out. Check lists of code letters should be made available if these have been used.

Notes: 1. This may be adapted for younger students who are learning either to orientate their map by means of a compass or estimating distance by means of pacing.

1:1000

Ex.	Control sequence.	Instructions.
(i)	<div>  code letter 1 7 2 6 5  </div>	Keep compass on map and check map orientation on each leg.
(ii)	<div>  bearing →5 →1 →8 →9 →7 → </div>	Obtain bearing from grid and follow it to find marker
(iii)	<div>  paces →1 →6 →5 → Paces/100m </div>	Count double paces
(iv)	<div>  m. →2 →7 →4 → </div>	Use pace count to find length of each leg in metres

47	COMPASS AND PACING COURSE	7-9 10-12	E	I
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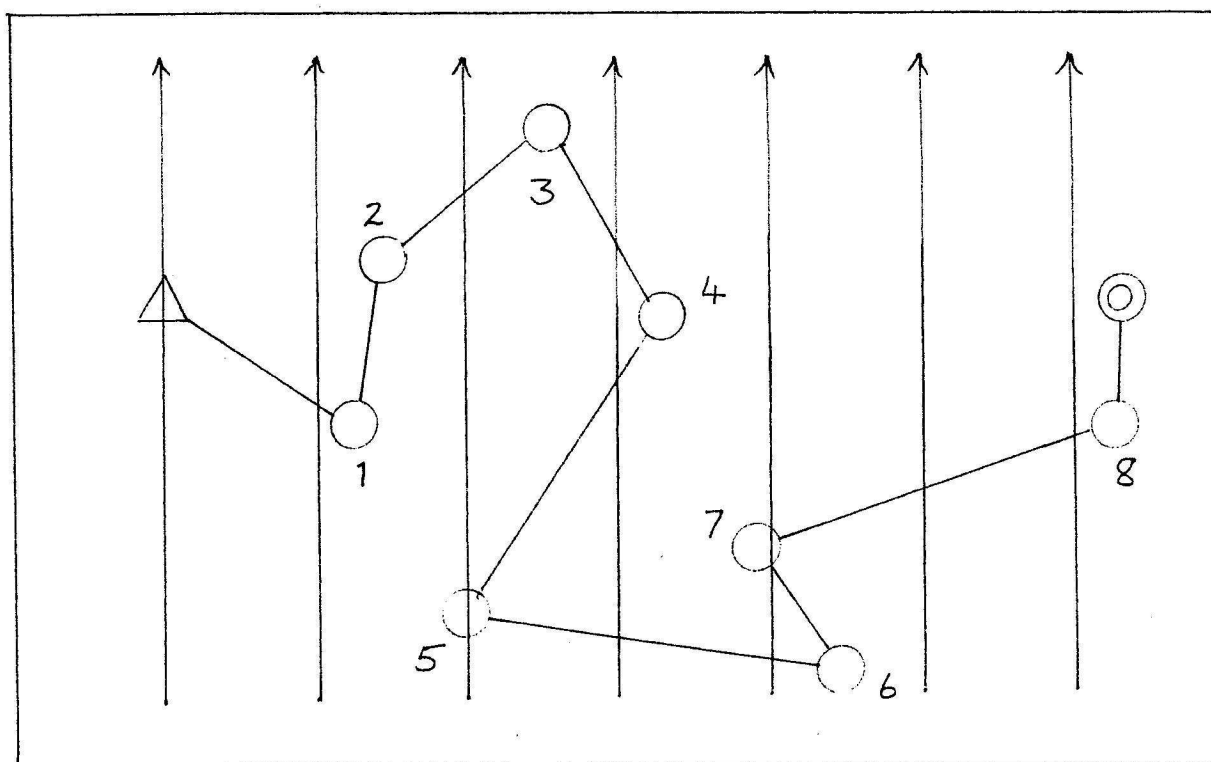
Aim: To give practice at taking bearings from a map and using the scale to obtain distances from the map.

Preparation: From the start point design a course using straight line routes which can be travelled easily. Hand the markers. Trace the circles and lines, mark the start and finish, add magnetic north lines and the scale. Duplicate.

Activity: Pupils receive a copy of the duplicated tracing and a compass. From a staggered start they navigate the course by obtaining the correct bearing from the tracing and working out the distance to be travelled along it.

Notes:

1. This can be adapted to an individual or relay star event.
2. The area used must be well-defined as no detailed map is carried.



48	DRAWING ACCURATE MAPS	7-9 10-12	RE	IPG
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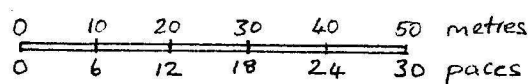
Aim: To give pupils practise in use of direction and scale.

Preparation: Select a suitable area for pupils to work. It is a good idea to establish boundaries and these may be marked on a base map.

Activity: Pupils need compasses, paper or base map, pencils (and erasers!) and a board to lean on. (No metal clips as this affects the compass.) The paper or base map needs magnetic north lines marked on it. The simplest method of mapping is as follows:

1. Start at a known point.
2. Take a bearing to a nearby feature.
3. Construct the direction line on the map.
4. Pace or measure to that feature.
5. Using a suitable scale plot that feature.
6. Choose the next feature, take bearing.
7. Repeat the procedure, plotting features as you go. Aim to finish at your starting point or another fixed point.

Notes: 1. A pacing scale can be constructed to allow fast and relatively accurate measurement of distance in conventional units. Each individual must establish, his or her number of paces to one hundred (100) metres. (See Activity 43) When a suitable map scale has been decided it can be drawn up as follows:-



MAP SCALE FOR (i) 1:1000 & (ii) 60 paces per hundred metres.

MAP DRAWING.

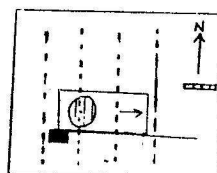
1) TAKE A BEARING:-



Hold your compass level. Point the base plate arrow towards the object.

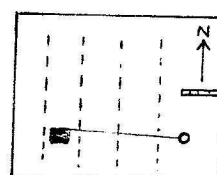
Turn the compass housing so that the compass needle settles over the housing base arrow.

2) TRANSFER BEARING TO MAP:-



Without moving housing, pivot the long edge of the compass around the start point. Stop when the parallel housing lines point due north. Draw the bearing along the edge of the compass.

3) ESTABLISH DISTANCE:-



Pace count to find distance. Use scale to measure correct distance along bearing. Draw in object. Repeat procedure to complete traverse.

49	DRAWING A MAP FROM A DESCRIPTION	7-9 10-12	T	I
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Aim: To give pupils practice in transferring verbal information into map form.

Preparation: Make up a description of an area which should include references to size, direction, slope, etc. The amount of detail depends on the ability of the pupils.

Activity: Each pupil receives a copy of the description and must endeavour to make as accurate a map as possible with legend, scale, north arrow and title.

ZOO PUZZLE

1. The elephants are nearest to the gate.
2. The giraffes are to the south of the hippos.
3. Most of the enclosures are 100m x 100m except for the elephants' which is 200m x 200m and the monkeys which is 50m x 50m.
4. The rhinos are in the south-east corner.
5. Four enclosures are grouped close together in the North-east corner.
6. All the enclosures are aligned north-south-east-west.
7. The refreshment hut is south-west of the giraffes and east of the elephants.
8. The gate is halfway down the west fence.
9. The monkeys are east of the giraffes.
10. The polar bears are to the north of the smallest enclosure.
11. The perimeter fence runs 1000 metres from east to west and 750 metres from north to south.

Which animals are in the north-east corner enclosure?

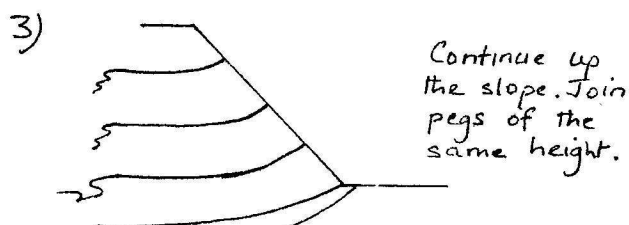
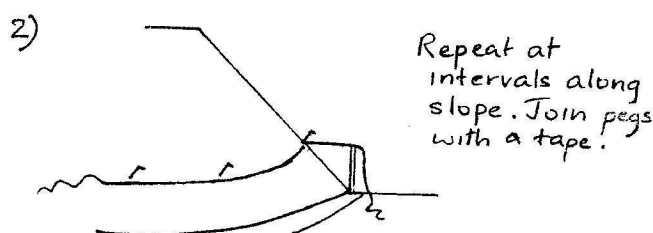
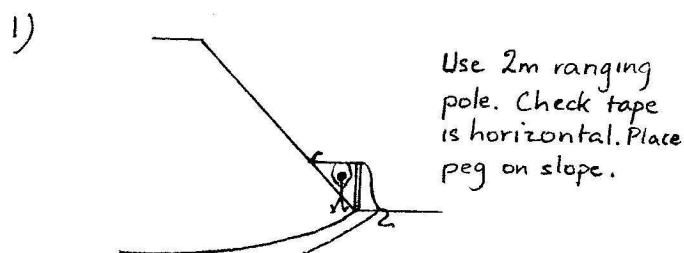
50	VISUALISING CONTOUR LINES	7-9 10-12	R E	G
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Aim: To tape out a contour line on a slope.

Preparation: Select a site with a grassy slope ending in a level area. Clinometers or carpenter's levels and sighting rods are necessary. Clinometers may be constructed with a protractor, string and heavy weight. Sighting poles can also be improvised from dowelling or broom handles and the height of the required contour interval marked clearly (1 m or 2 m usually best). A quantity of tape is also needed together with markers (e.g. tent pegs).

Activity: Start by laying out a tape along the level ground at the base of the slope. This represents a contour line and acts as a base line for the exercise. Groups of pupils spread out along the base line. Each group determines the point on the slope at right angles to the base line at 2 metres, 4 metres, 6 metres (or whatever interval is appropriate) above the line. A marker is placed at each site. Tape is then run between the marker to form 2 metres, 4 metres and 6 metres contour lines.

VISUALISING CONTOUR LINES



51	MODEL ISLAND CONTOUR MAP	7-9 10-12	T	G
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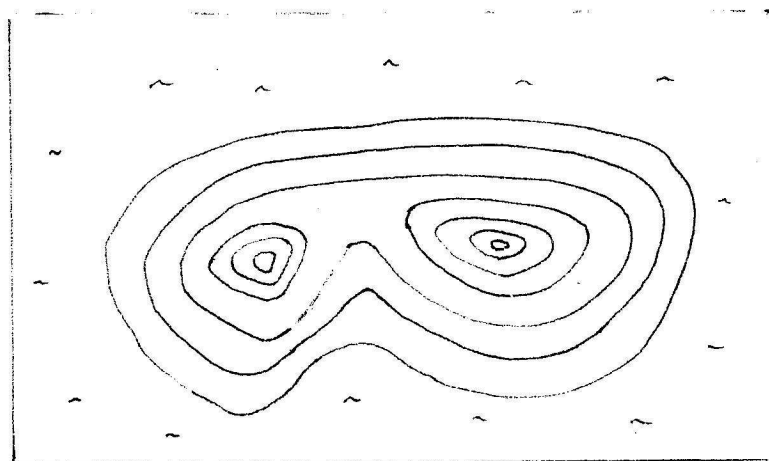
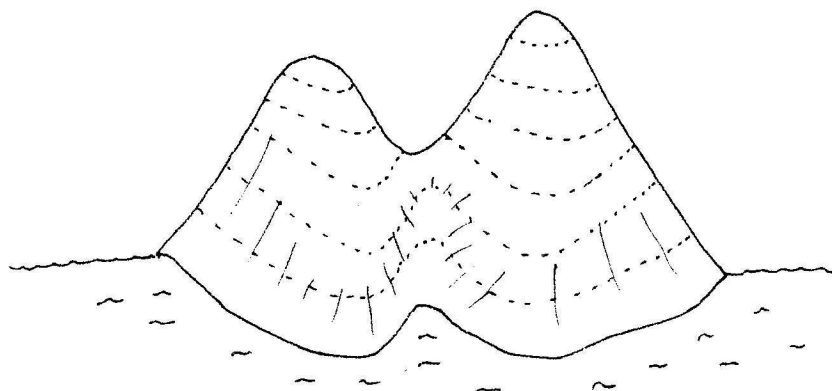
Aim: To draw a contour map of a concrete model.

Preparation: A model island that fits inside a large deep bowl is needed. Commercial models are available or one can be made from plaster and thoroughly waterproofed with a clear sealer. Oil base marker pens are required.

Activity: The model island is placed in the bowl with two (2) centimetres depth of water. The water level round the island is drawn in. Another two (2) centimetres of water is added and the waterline is marked. This is repeated until the water covers the island. The bowl is then emptied and the model viewed from above. The water lines form contours. The pattern can be sketched to give a contour map of the island.

Notes: Extension Activity

1. It is possible to arrange two identical contour maps to become a stereo pair. When viewed through stereo glasses they appear three dimensional. These are available commercially. It is also possible to draw contour lines on a stereo pair of air photos (of hills, volcanoes, etc.) while viewing under the stereoscope. This is the basis of contour photogrammetry.



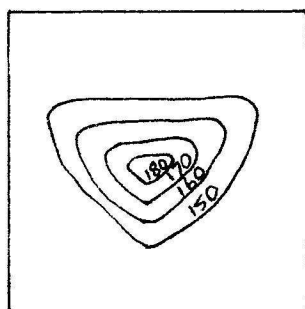
52	CONTOUR GAMES	7-9 10-12	T	I P G
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Aim: To aid in recognition of contour patterns.

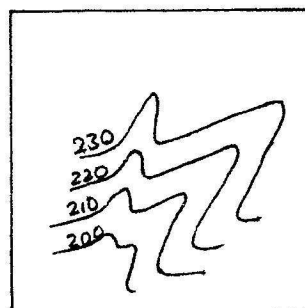
Preparation and Activity: These games are similar to those used earlier for map symbol recognition

Contour Bingo	See Activity 5
Contour Pattern Relay	See Activity 6
Contour Pattern Pairs	See Activity 7
Contour Jig-Saws	See Activity 8
Contour Map Marking Relay	See Activity 16

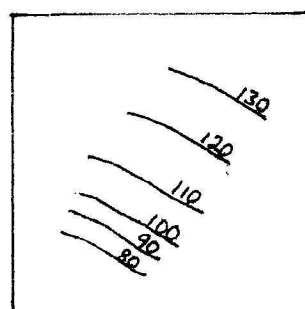
SAMPLE CARDS FOR CONTOUR PATTERN PAIRS.



triangular
hill
summit



two
valleys



slope-gentle
at top and
steep at
base.

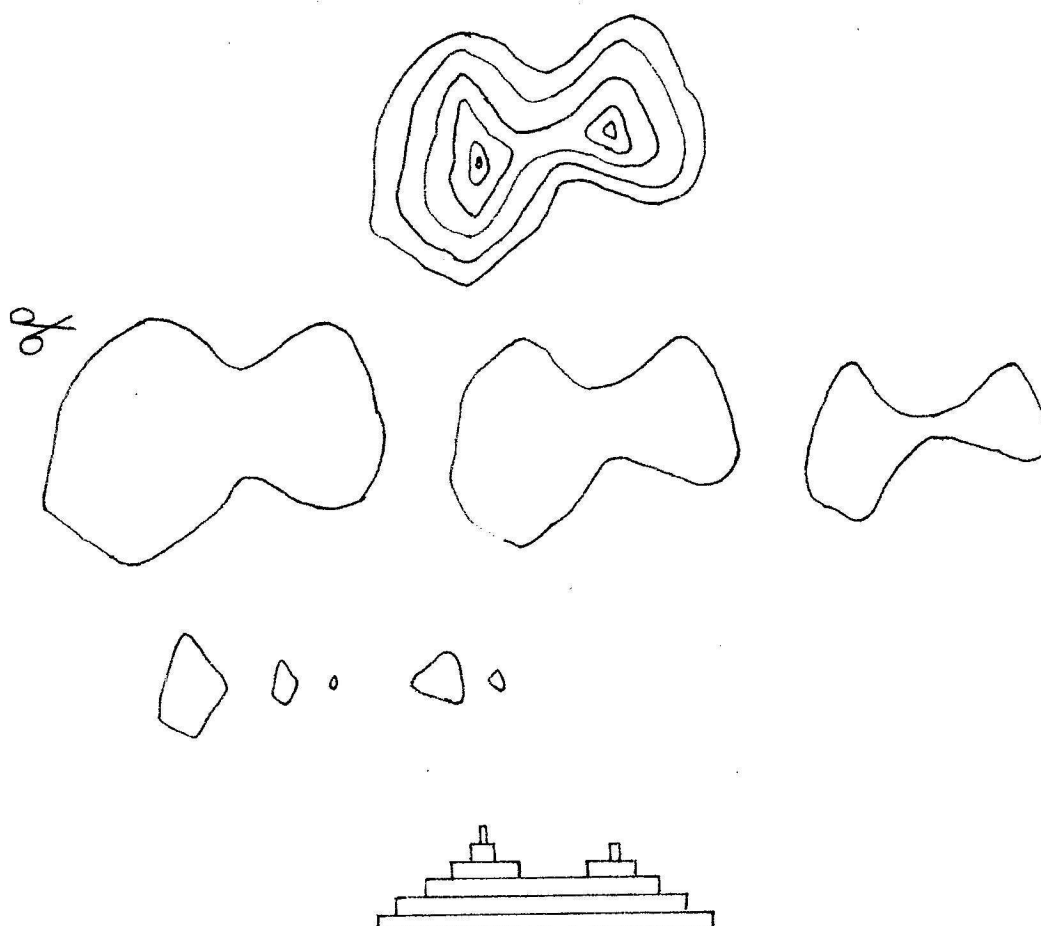
53	MAKING CONTOUR MODELS	7-9 10-12	T	I P G
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Aim: To produce a concrete model of the terrain from a contour map.

Preparation: Draw a suitable contour map for younger pupils. Older students may attempt this using a small part of an 'O' or topographic map. Collect card or thin polystyrene sheeting.

Activity: Each group receives a copy of the map, card or polystyrene and suitable glue. Starting with the lowest contour line, trace the outline, transfer the shape to card or polystyrene and cut out. Repeat with each contour line and glue together with correct spacing.

Notes: 1. The model can be cut in half and the same line of section constructed on graph paper from the original map for comparison. This may lead to discussion of vertical exaggeration. See next Activity.

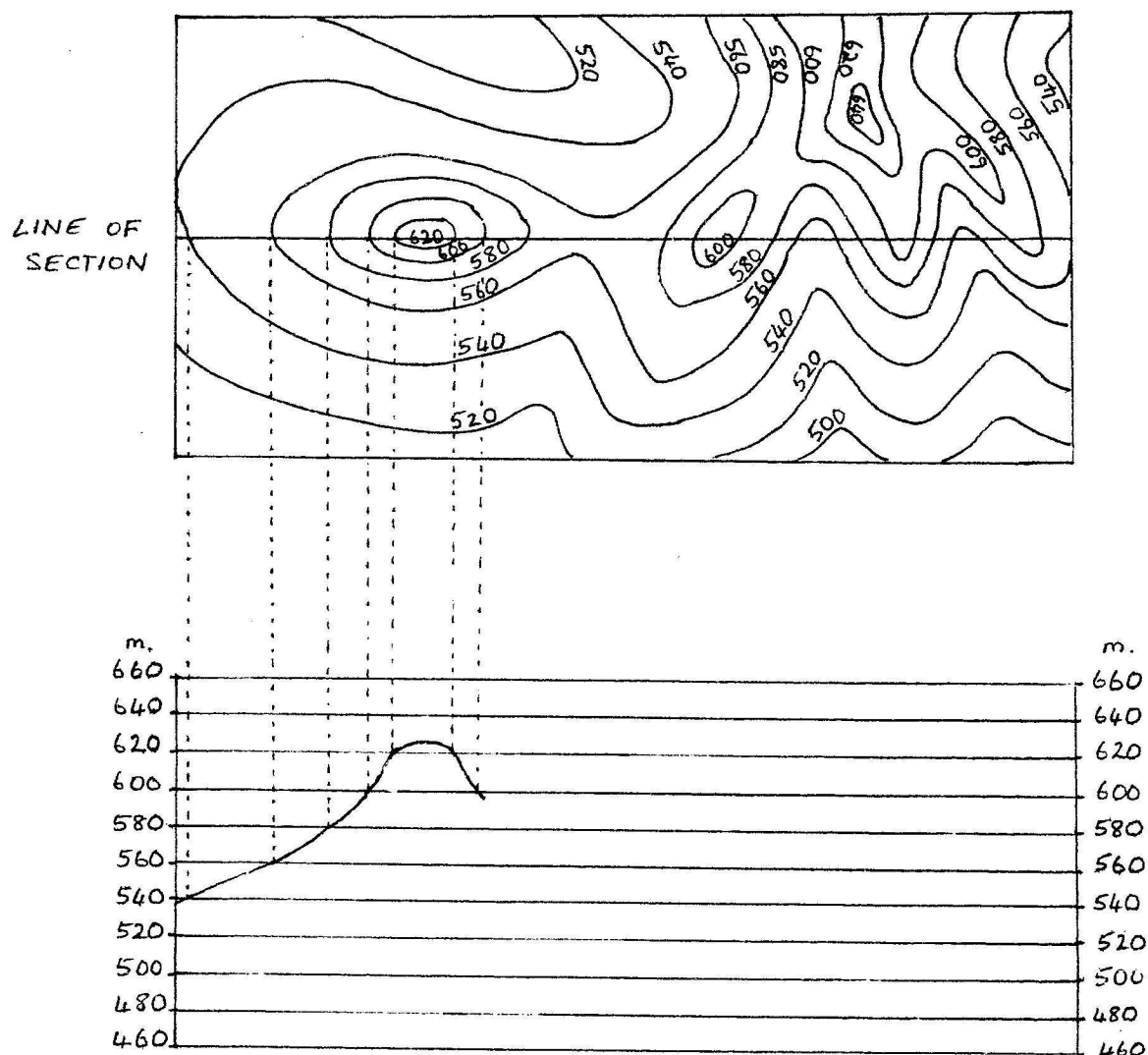


54	DRAWING CONTOUR SECTIONS	7-9 10-12	T	I
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Aim: To graph distance against height from contours on a map to allow the shape of the terrain to be seen.

Preparation: For younger pupils this exercise should be done using a specially drawn map with simple features. Older pupils can try sections from 'O' or topographic maps and the concept of vertical exaggeration can be introduced.

Activity: Each pupil requires a copy of the exercise. An example is given below. Section drawing is explained and time given to draw the graph. The section is completed by joining the dots in a smooth curve and shading the rock area.



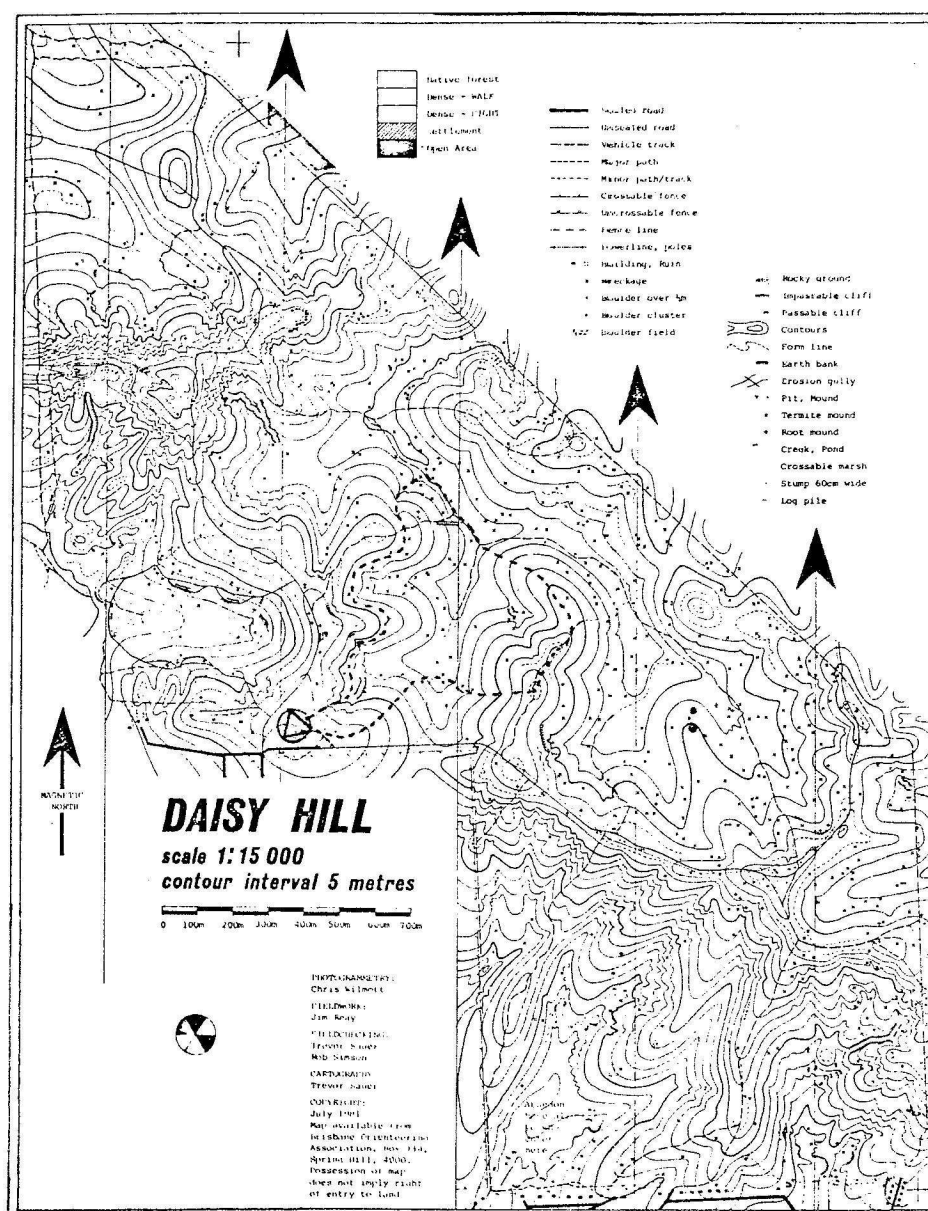
Aim: To give practice at "reading" contours.

Preparation: Design a line event using contour lines and features for example ridges, spurs and gullies. Maps may be pre-marked.

Activity: The pupils receive a copy of the map or mark up the course if necessary. A staggered start must be used.

Notes:

1. This can be used as an introduction to contour lines by means of a group walk round the course.
2. A line course can be designed on a map which has the contour lines marked. This is useful when the pupils already have a basic knowledge of contour lines.



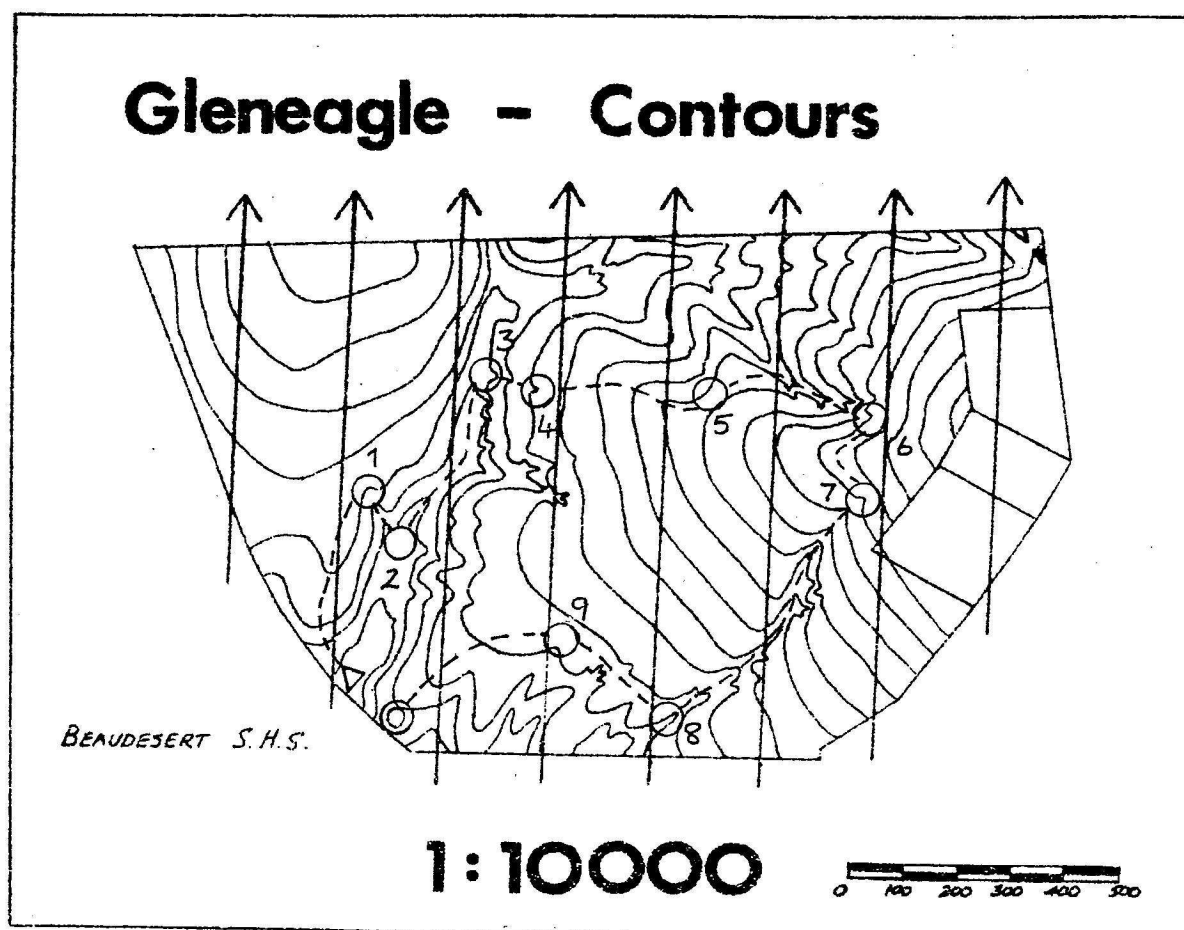
56	CONTOUR COURSE	10-12	E	I P G
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Aim: To give practice at relating contour patterns to the terrain.

Preparation: Prepare a map with contour lines only. Design a course utilising the contour features for handrails and control points. Maps may be pre-marked.

Activity: The pupils receive a copy of the map and mark the course if necessary. The course is run, using a staggered start.

Notes: 1. This may be used as an introduction to contour lines by means of a group walk round the course.



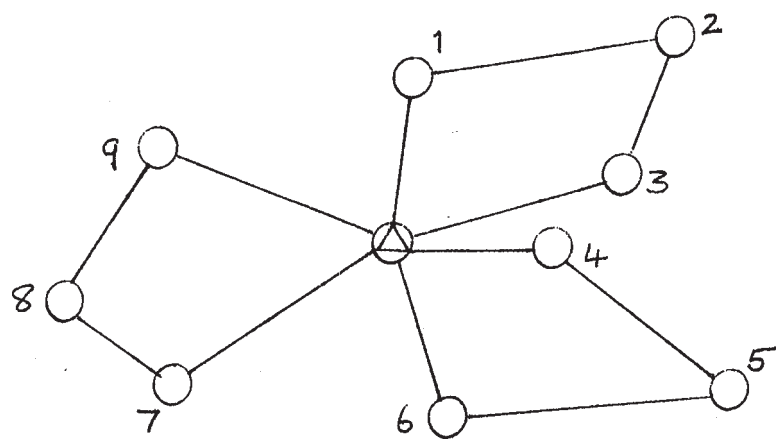
APPENDIX I

STAGES IN DEVELOPMENT OF MAP LITERACY

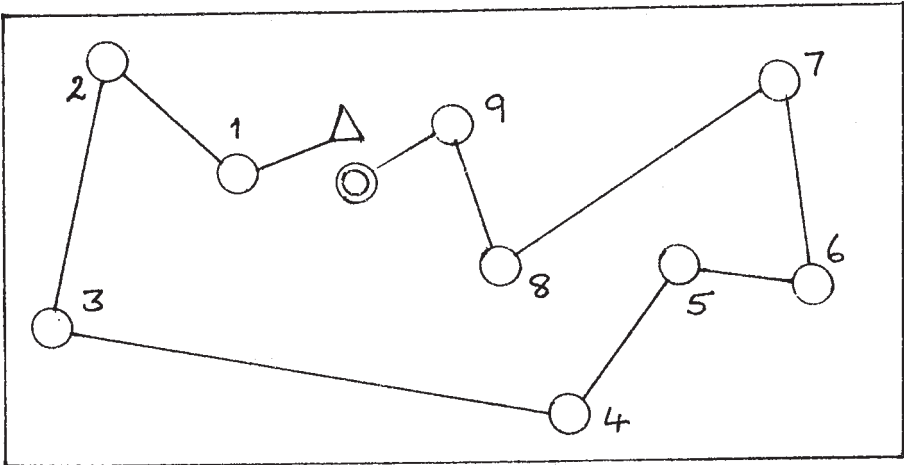
GRADE	STAGE	KEY MAP CONCEPTS	SUITABLE MAPS	ACTIVITIES ORIENTEERING
PRE SCHOOL	Egocentric Spatial	Learns to organise space Develops 3-D system of reference:- side in front, behind. above, below	Models	Matching shape games Environmental modeling
1 2 3		Vertical, horizontal Direction from individual Depth or distance from individual, i.e. near, far The map as a representation of space Selectivity of map information View from above	Colour aerial photos photo graphs Single theme maps with pictorial symbols	Drawing 'little' maps Orienteering activities large base maps with fixed orientation
4 5 6	Objective Spatial	Cardinal points Orientation from north Proportion Measurement Simple reference systems Object permanency Change with time	Several theme maps with-abstract symbols No contours	Use own copy of map Line event orienteering, use of compass for orientation
7 8 9		360° compass Magnetic and true north Scale Complex reference systems e.g. 4 and 6 figure grid references	Multi-theme maps with abstract symbols Includes most orienteering maps	Direction distance courses, etc., Courses or orienteering maps not utilising contour scale:
10 11 12	Abstract Spatial	Contours	Topographic maps Includes all orienteering maps	Courses on orienteering maps require use of C:- features

GLOSSARY OF COURSES

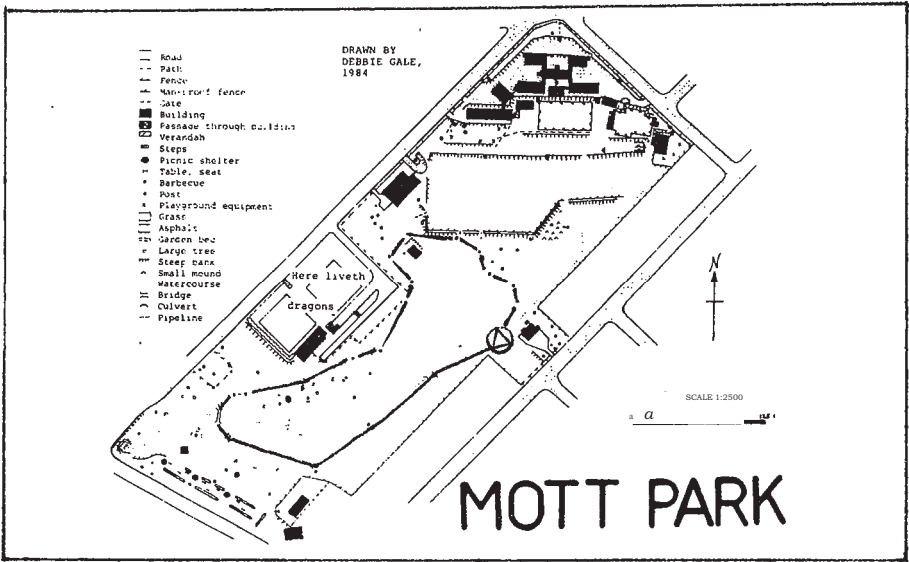
CLOVER LEAF



CROSS COUNTRY



LINE

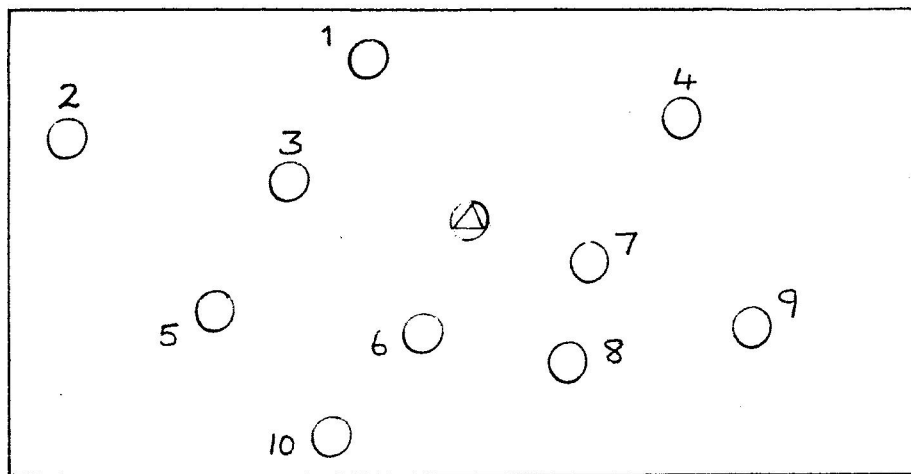


APPENDIX V (Cont'd)

SCATTER

N.B.

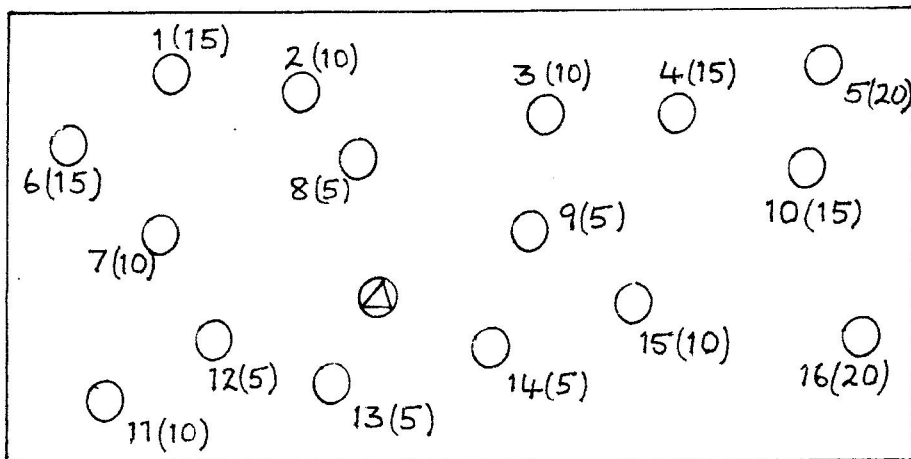
Pupils must visit all controls but in any order



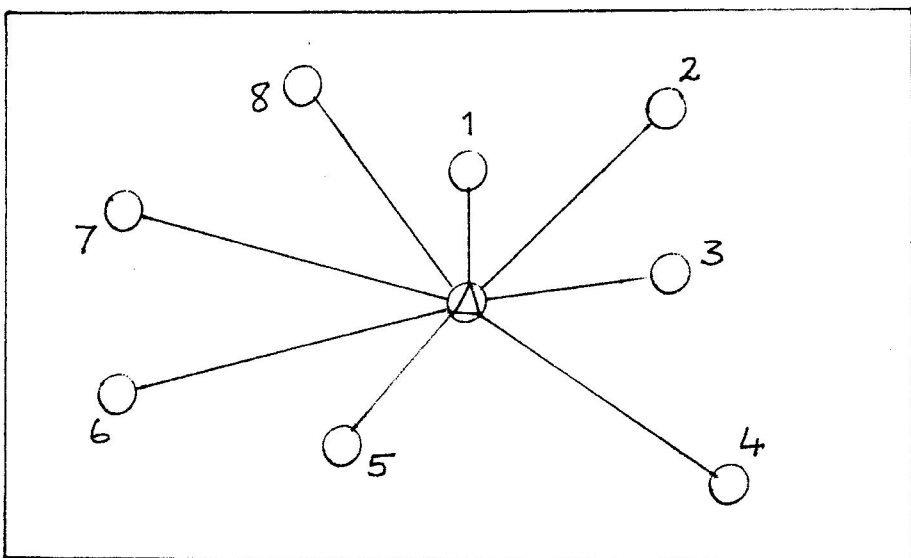
SCORE

N.B.

Pupils visit as many controls as possible in a fixed time



STAR



GLOSSARY OF TERMS

BEARING	The direction you want to travel (may be expressed in degrees when using a compass).
BLANK MAP	A map with no orienteering course marked on it.
COMPASS	Orienteering compasses have the compass housing mounted on a transparent base plate so bearings may be read directly from the map.
CONTOUR LINES	Lines drawn on a map which joins points which have the same elevation.
CONTOUR INTERVAL	The distance in height between two adjacent contour lines.
CONTROL CARD	A card that the orienteer carries to write on or punch at each control point as evidence that he or she has been there.
CONTROL CODE	A number (or letter) which is with each control description and on the corresponding marker. It enables the orienteer to be sure that he or she has found the correct marker.
CONTROL DESCRIPTION	A short description of the exact point where the control marker sits.
CONTROL FEATURE	The feature on (or at) which the control marker is placed.
DOG LEG	A course where two adjacent legs are separated by an acute angle. Competitors leaving the control act as a guide for those approaching it. Unsatisfactory.
HANDRAIL	A linear feature such as a road, path, fence, or stream which runs more or less parallel to the direction of travel and which may be used by an orienteer as a guide to his or her destination.
LEG	The section of a course between two controls.
LINEAR (LINE) FEATURE	An elongated feature, such as a path, road, field edge, fence, stream, etc.
MAP SCALE	The ratio of distance on the map to the distance on the ground.
MASS START	All competitors start at the same time.

BOOKS - VIDEOS - EQUIPMENT

BOOKS

- A Ten Week Do-It-Yourself Guide for Greeny-Orange Orienteers – J. Deucker 1994
[Available from Orienteering Queensland– State Director of Coaching :\$5.50]
- Get Fit for Orienteering – Steve Bird, Nonington press 1996 :\$29.95
- Masters Sports Training for Enhanced Performance – P.Raeburn, D. Jenkins, ACHPER 1995 [Available from ACHPER]
- Orienteering Technique from Start to Finish – Norman & Yngstrom , SOFT 1991 \$32.95
- Orienteering: The Skills of the Game – C. McNeill, Crowood Press 1989: \$26.95
- Orienteering Training and Coaching J. Thornley, BOF 1982: \$35.00
- Outward Bound Orienteering handbook – M. Bagness, Wardlock 1995
- Pathways to Excellence: Orienteering – P. Palmer, Harveys 1994 \$29.95

For Teachers and Coaches

- Elementary Orienteering Instructors Guide – D. Gale [Available Orienteering Queensland – State Dir Coaching \$13.00]
- Games Orienteers Play – D. Gale, QSOA [Available Orienteering Queensland – State Dir Coaching: \$11.00]
- Teaching Orienteering – C. McNeill et.al. Harveys, \$49.45 (Available Harvey Maps – see below)
- Level 1 Orienteering Coaching Manual – Orienteering Australia [Available Orienteering Queensland, State Dir Coaching \$22.00]

VIDEOS

- Orienteering – Video Education Australia 11a Mitchell St, Bendigo, Vic 3550; Freecall 1800 034 282; Ph: 03 54422433; Fax: 03 5441 1148
- <http://www.orienteering.asn.au/promotion/devel/videos/>

This site lists various videos available on the net, mostly on Youtube.

Except where indicated, most of the above items are available on online, from Orienteering Service of Australia, and Hart Sport. See details below

Most clubs have libraries, and if you become a member, you can arrange to borrow books from your club library.

USEFUL WEBSITES

Orienteering Queensland	www.oq.asn.au
Orienteering Australia	www.orienteering.asn.au
Orienteering Service of Australia	www.omotivo.com.au
Hart Sport	www.hartsport.com.au
Harvey Maps	www.harveymaps.co.uk
British Orienteering Federation	www.britishorienteering.org.uk

EQUIPMENT and CLOTHING

- **Silva compasses** are particularly recommended – these and other Silva equipment are available from: **Scientific Instrument and Optical Sales** , Unit1, 62 Bishop St., Kelvin Grove; Phone: 07 33560233
- **Orienteering Service of Australia** carries a wide stock, including compasses, orienteering shoes, control flags and punches, and books, etc. See contact details below
- **Hart Sport and Leisure**, sell orienteering control flags, compasses, books, and games: Unit 7/87 Webster Rd, Stafford Ph 07 3352 6000; Fax: 07 3352 6500; Website: www.hartsport.com.au
- You may be able to purchase material/order O suits to be made through your local club. Please contact your local club.

APPENDIX VI (Cont'd)

MASTER MAPS	Maps, usually displayed at or near the start, from which the orienteer copies the controls he or she has on his or her course.
ORIENTATING THE MAP	Setting the map so that the north on the map points north in the terrain, so that the features in the terrain correspond to the symbols on the map.
PACING (PACE COUNTING)	A method of distance judgment where every second step is counted.
PACING SCALE	A scale which can be attached to the compass for measuring distances in intervals of one's own pacing.
PRE-MARKED MAP	A map which has the course drawn in prior to the competitor receiving it.
PROJECT ORIENTEERING	The use of specific questions on a particular topic which must be answered at, and relate to, each control feature, e.g. type of tree.
PUNCHING The act of	marking one's control card with the marking device at the control marker, e.g. a punch which makes a distinctive mark, or a particular coloured crayon,
SAFETY BEARING	A compass bearing issued prior to a competition for use in an emergency. The bearing directs competitors to a major, well-used features (road, highway, etc.).
STAGGERED START	Competitors are started at set intervals of time, e.g. two (2) minutes.
THUMBING THE MAP	An orienteering technique in which the orienteer places his thumb on the map at each point he can definitely identify and does not move it again until he comes to the next point.
TRIVIA ORIENTEERING	The use of a specific question concerning some trivial fact which must be answered on reaching each control feature, e.g. colour of writing on post.