

Teaching Orienteering Technique

Advanced Levels



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Swedish title: Orienteringsteknik - att lära ut på orange till svart nivå

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Translation: Jane Forrest

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Orienteering Technique

Based on the swedish book Orienteringsteknik, Att lära ut på grön till gul nivå

by

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Layout by Hollowhead, Branding & Marketing

The orienteering technique tool box

Orienteering technique is different from the techniques required in many other sport areas. Techniques in other sports are often related to movements and control of these movements, for example how you hold your hand for a back hand in table tennis. Orienteering technique is predominantly about thought processes and interpretation, evaluation and decision making. For you as a coach this provides a unique challenge as it is difficult to physically identify strengths and weaknesses in technique. It is only through a constructive conversation with the runner that you can gain insight into their thoughts to uncover which techniques are in use. You can find more on this in the chapter on feedback between the coach and runner.

The following are a number of the orienteering techniques that can be obtained:

Advance planning – to gain flow

Attack points – safer finding the controls

Extension – safer and faster finding of the controls

Backwards thinking – route choice

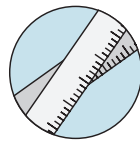
Pacing – as a complement to reading the map that increases security

Tempo changing – adapting running speed and accuracy in reading the map depending on the difficulty level

Simplification and structuring – simplify and organise the map picture

Compass work, fine and rough – adapting the level of accuracy depending on the difficulty level.

These tools are an abstract concept. It will be easier for the runner if you can make this abstract concept more concrete so they can understand what is meant by an orienteering technique tool. Here are some examples of concrete tools which you can use to obtain symbols for the thought process tools.



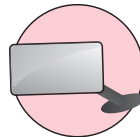
Ruler – extend the control



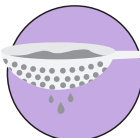
Gears – tempo changes



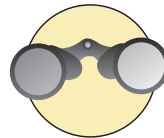
Keyhole – safe attack points



Wing mirror – backwards thinking in route choice



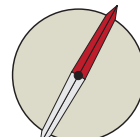
Colander – to simplify, use only the important details



Binoculars – for advance planning



Pace counter - understanding distances, pacing



Compass – to hold direction



Hammer –

If you or those you are working with wonder what the hammer is for it is for spiking the control.

Contour orienteering and hill formation

Contour reading is one of the hardest elements to learn and therefore to teach as well. A prerequisite is that the runner can think abstractly and three dimensionally. In orienteering the contour reading element is introduced at the orange standard, at 13 years old in competition. At this age it can work as an appropriate objective when the possibility for abstract and three dimensional thought has developed in the individual. Remember

that individual differences in maturity are great and as a leader it is important that you know and understand this so that you don't try to teach something to the runner that they are not ready for. If the learning is unsuccessful it is sensible, and simpler, to just leave this and reintroduce the element later instead.

Contour reading is purely a map reading process and not an actual tool. It

is important that those who actively orienteer understand how contour formations are shown on the map, and vice versa.

Through the use of some of the orienteering tools the runner uses the contour formations to simplify the orienteering. Be aware that these tools can also be used without using contour formations. Therefore these tools will be revisited later in the book in another form.

Exercise examples for reading contours

Curve walk

Tape a hill curve/route as planned and written on the map. Preferably have this as a complete loop that finishes at the start point again. The more details on the route (e.g. ridges, re-entrants, hills and knolls) the better. Walk the group around the loop with tapes and discuss and show the different terrain details.

Variant of the exercise

If those participating want to go without a leader you can set out controls with different contour features which the runners need to mark with a pin prick or a dot on their map.

Top orienteering

Set a course where all of the controls are placed high up on clear tops. The exercise requires that the runners understand where the highest point is and how it is represented on the map.

Map walk

As a runner it is important to have a large amount of experience of how contour formations are represented on the map. In other words it is appropriate to practise in a way that forces the runners to transfer (map to terrain) as much as possible. In order to achieve this it is better to walk than run. As this type of training requires such high concentration it should not last longer than 20

minutes at a time. To partake in a map walk with a leader, runner or map drawer who points out and shows how things are shown on the map, and why, and to discuss with others in the group, or describe what you see and don't see is a very good way to gain better understanding of the map and feeling for the map. Exactly transferring can be referred to as foundation training for orienteering technique.

Hang out and collect in

Split the runners into pairs and have them set out their own control kites. They then switch maps with each other and collect in the controls. As the leader you then write two new controls on their maps. If the control site is, for example, on a hill or a re-entrant it requires accurate map reading and good interpretation of contours in order to hang the control in the correct place. If a control is not found or a runner cannot set a control out in the right place it is the perfect opportunity to go out as a group and discuss the contour lines.

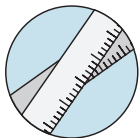
Course orienteering

This exercise aims to teach rough contour reading. By running long the highest point of hill formations an insight into how hills are represented on the map and how they can be used in the best way can be achieved. Set a course where the runner moves along with the hills and mark the hill formations so that it is obvious what is meant by following the hills.



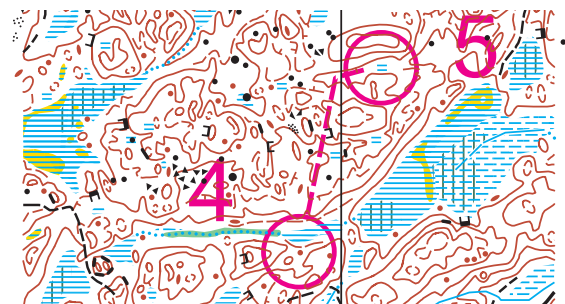
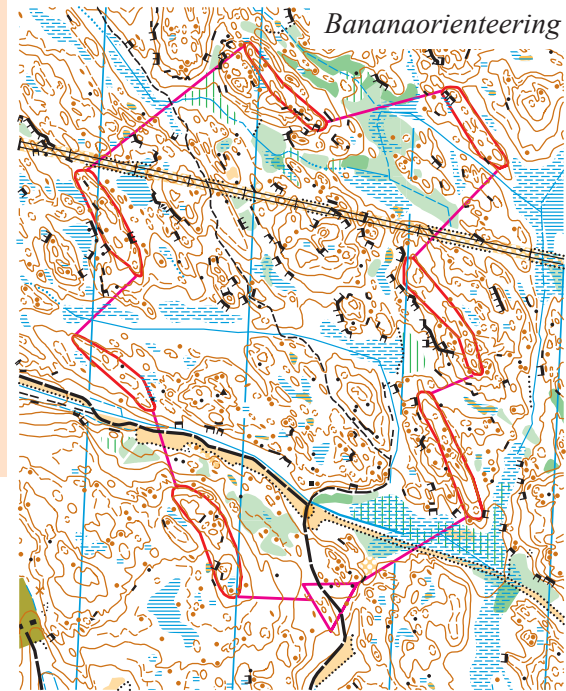
The tool of attack points

Attack points allow a runner to take themselves to a clear and safe point as close to the control as possible. From this point the runner should be able to attack the control. Controls are often difficult to find once near the circle and it is therefore appropriate to use a high point as an attack point. A high point is often a good attack point, as from this height you should have a good view over the many terrain features and easier to find exactly where you are on the map.



The tool of extension

By using hill formations such as spurs and re-entrants you can simplify the exercise by extending the control. A simple way to



do this is to set the courses where there are many possibilities for this to be obvious. It can be made by marking the extension on the map yourself, see the example over.

Exercise example for attack points

Top safety

Set a course where the controls sit directly behind a top that will be passed on the route to the control. Here you can try some different varieties of the exercise:

Set out large flags on the tops which will then lead to the control site with a flag and a punch.

Don't hang anything at all at the attackpoint.

Route choice problem

A route choice involves two steps for the runner. **To recognise** what the alternative route choices are. **To decide** which of these alternatives is the best having considered the different reasons.

The different factors that influence the decision between different alternatives are:

Which route is the easiest to run (is the quickest to run)

Which route choice offers the simplest orienteering along the leg (which is easiest to take)

From which direction should the control be taken (so that finding the control is as easy as possible)

Which alternative will save the most energy (in terms of hills among other factors)

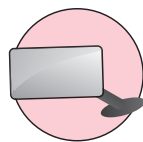
A tactical choice, which alternative suits the runner personally, for example if the runner has recently made a mistake.

Kilometre timings in different undergrowth

Road	-	3'46
Large path	-	4'18
Small path	-	5'11
Marsh	-	5'30
Flat terrain	-	6'35
Undulating terrain	-	7'10
Hilly terrain	-	8'00
Very hilly terrain	-	9'00
Extremely hilly terrain	-	12'20

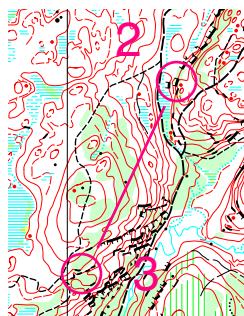
These timings are appropriate for male seniors.

All of these factors need to be evaluated for the runners own capacity. The same route will not necessarily be the best for two different individuals. One could be a fast runner and not as confident reading the map and therefore choose to take a longer but easier route on paths and tracks. Another runner could be more confident of their orienteering and a strong runner in the terrain and choose a route straight through the forest. Both can be the optimal route choice in accordance with the individual's ability.



The tool of thinking backwards

Finding the control is a critical element and often difficult as you need to know exactly where you are. It is therefore important to teach the runners the importance of thinking backwards when choosing a route, i.e. where is it easiest and quickest to find the control from? Many course planners like to try to trick runners into certain route choices as well by having a simple, easy to run route directly out of the control that after a short while is much more difficult to follow. This is why it is so important to plan your whole route in order to find the control.



Which route provides the safest opportunity for finding the control?

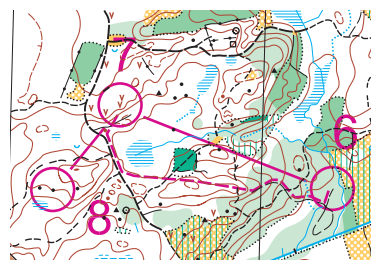
The following can be an example of tactical consideration over route choice:

The runner goes round with the route choice on tracks and paths in order to have the opportunity to read the up and coming legs.

The runner takes the energy saving route choice as it is a long distance course, tough terrain and hot climate.

The runner has lost their orienteering flow and therefore takes the easier, safer route in order to find their flow and regain self-confidence again.

The runner is chasing a pack in a relay and therefore chooses a route where he/she is likely to meet the pack as they come out of the control.



Tactical route choice. Meeting runners on their way out of a control.

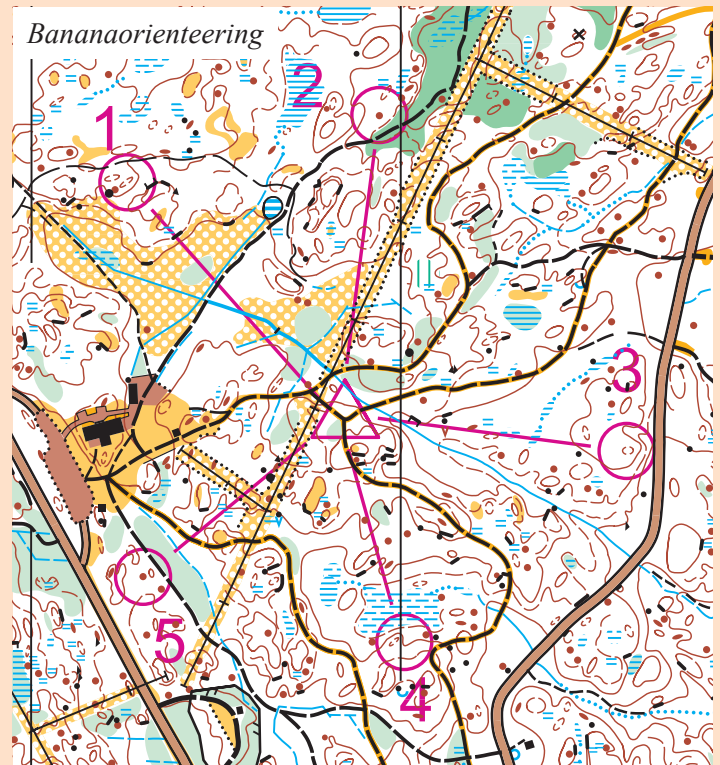
Example exercises for thinking backwards.

Route choice stars

Plan star orienteering where there is at least two different route choices of a different nature to every control. The actual finding of the control should be easy. Split the runners up into groups of similar ability, with 2-3 runners in each group. The runners choose a different route choice to the control and start at the same time. They wait for one another at the control and choose their next route on the way back to the start. They should take it in turns to choose their route first.

Think first – then run

Set a course with alternative route choices. The runners run in pairs and take it in turns to choose their route to the control first. It is important that before the runner leaves the control he/she says which route they have chosen and why. The other runner must take a different route. After every leg they wait for one another at the control and if necessary compare the differences.



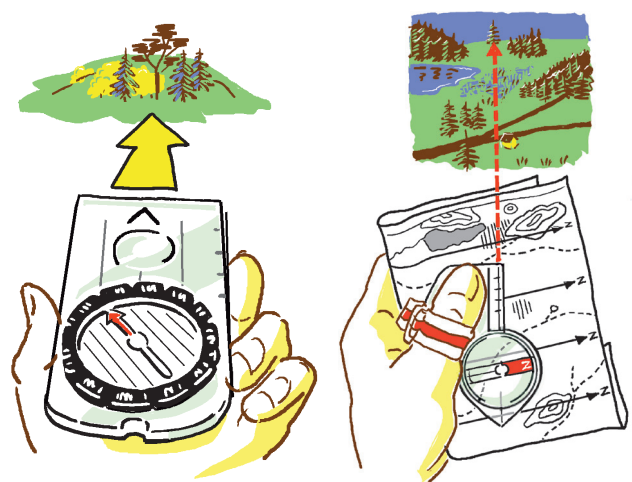
Maintaining direction

There are two main possibilities for maintaining direction through unknown terrain. One is to intensively read the map, where reading at least three main features allows you to gain an understanding of the terrain (through spatial awareness). The other possibility is to use the compass as an aid in order to maintain the correct direction quickly and safely. Through reading the map, understanding the terrain and by making use of clear “highways” you can maintain your direction through the forest even without a compass. It is recommended to train without a compass every now and then as it can improve the ability to maintain direction accurately.

Different models of compass

There are two main models of compass that are used today; the base plate compass and

the thumb compass. Both models have their advantages and disadvantages.



Make sure that the runners try out the different models before making their choice.

The base plate compass

The advantage of a base plate compass is that a more accurate bearing can be taken which gives increased safety, not least in areas with less detail and flat terrain and night orienteering where visibility is reduced. With the base plate distances can also be measured so that the runner can use pacing if necessary.

The disadvantage is that runners who orienteer with too much reliance on the compass bearing have less practise map reading and it is therefore easier to lose contact with the map reading in a competition situation.

The thumb compass

The advantage of the thumb compass is that the runner can continuously and more easily check that they are running in the correct direction. You also automatically have a good thumb grip and aside from this the runner is encouraged to read the map more.

The disadvantage is that it is harder to hold accurate direction, for example in sparse, terrain with less detail.

Reasons for directional mistakes

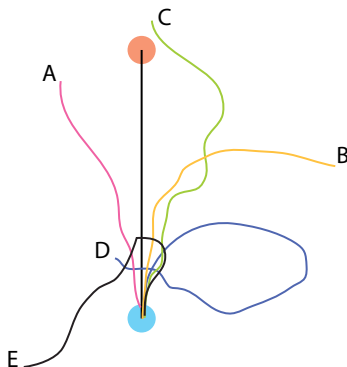
To run in the correct direction over a large marsh that has no clear reference points can be difficult. It doesn't work if you neglect being accurate with the compass.

Here are some examples of directional mistakes:

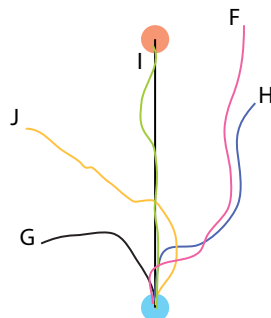
- In terrain with poor runability where the runner needs to avoid obstructions all the time, such as branches, trees, bushes and large boulders, it is easy to always run in the same direction, for example to the right. Therefore the runners need to learn to run in a zig-zag route – alternating between the right and left when avoiding obstructions in the terrain in order to minimise the risk of losing direction.

Directional skills

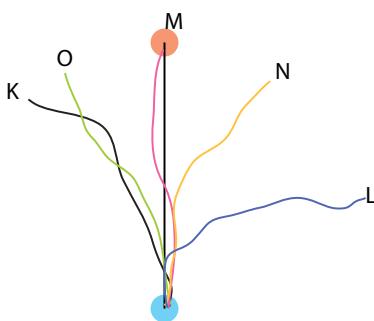
Elementary school



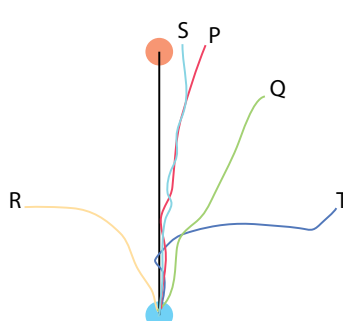
Middle School



High school

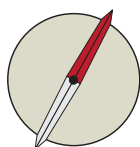


Competing Orienteers



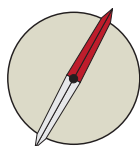
Johnny Nilsson (GIH Stockholm) showed in a study in 1985 that an experienced orienteer is not that much better at holding their direction without a compass than an inexperienced orienteer. However, it has been established that these skills improve with age, from childhood to adulthood. The subjects in the experiment had a direction pointed out to them through the forest. After this the subject was required to run in that direction without help from a map or a compass. The respective colours and letters represent the subjects' route.

- On slopes, especially if the runner runs diagonally up, it can be difficult to keep the direction and the risk is that the runner will find they are too low.
- If the runner has missed a control there is a risk that they come into the control from the wrong direction. This, in combination with being distracted by the mistake, can lead to a high risk of directional mistake.
- When the runner runs around hill formations or marshes. In this situation it is easy to hop off this route too early or too late and therefore have the wrong direction.



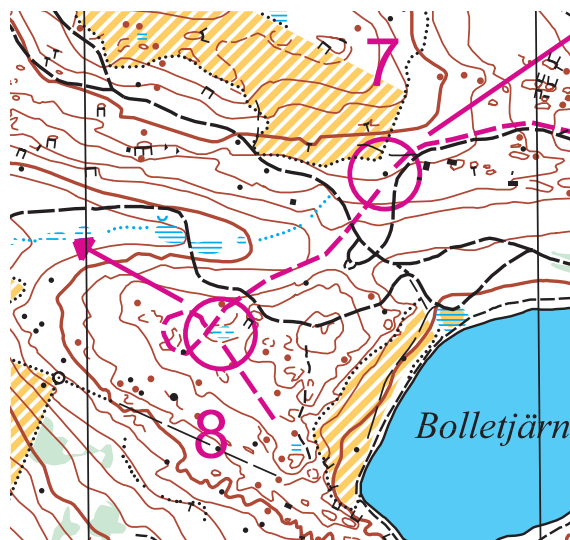
Fine compass bearings

This kind of compass bearing requires directional accuracy and you should look at the compass often and aim towards a feature/object. Fine compass bearings are often used when a runner is going into a control. Therefore when training fine compass bearings you shouldn't set legs that are longer than 200m.

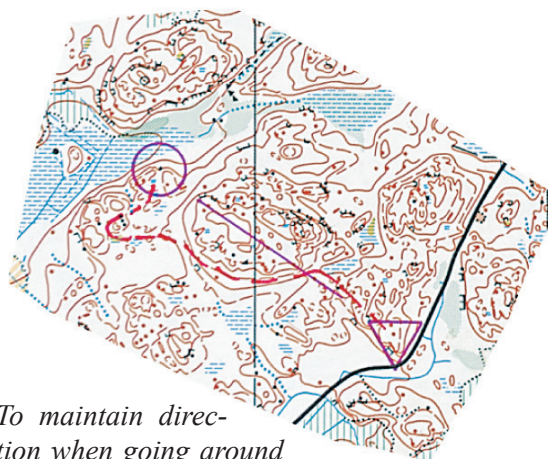


Rough compass bearings

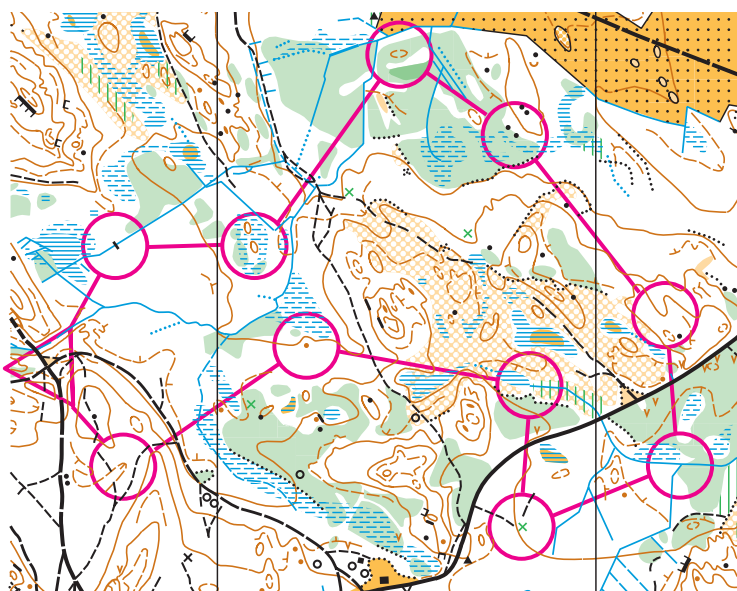
The principle is actually the same as for fine compass bearings. However, you do not need to be as accurate and can run longer sections without looking at the compass. Rough compass bearings are used when running to a catching feature, for example a road, a large marsh or a clear ridge, and when it is not as crucial to come out in exactly the right place.



Disrupted direction after missing a control.



To maintain direction when going around a hill is deceptive.

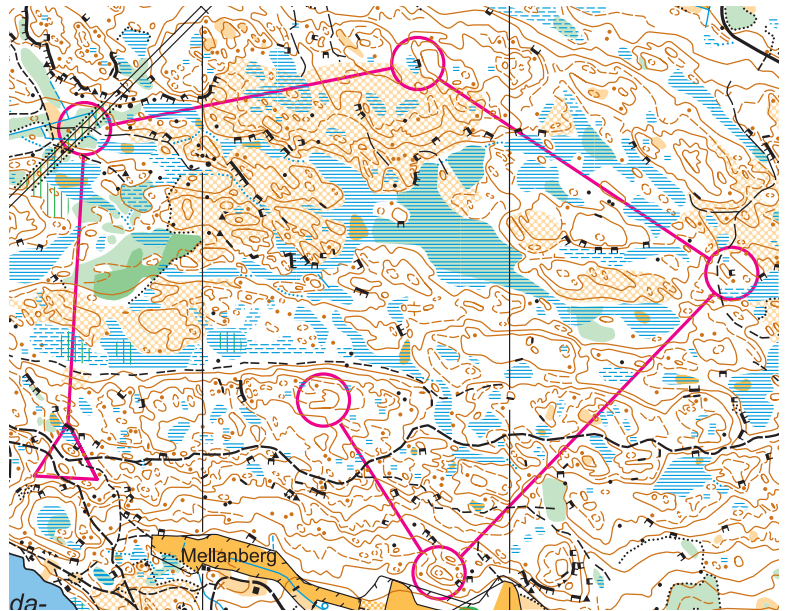


Training fine compass bearings.

Physical compass technique

It is important to teach real compass technique, i.e. how the runner should hold the compass in relation to their body.

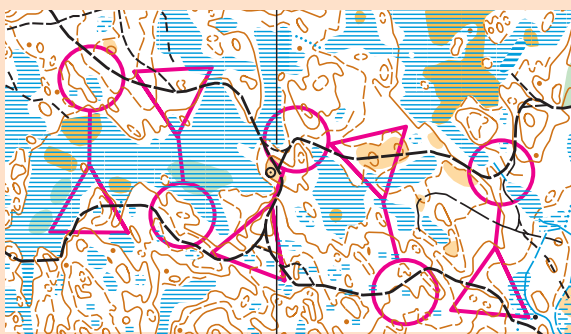
- The compass should be held directly in front of the body, and not to the side. The compass in front of the navel!
- The compass should be held flat. Think of pancakes!



Exercise example for compass bearings

"Slingerbulten"

Find an area on the map where there are two parallel line features. Mark out controls with control kites. The runners should walk on a rough compass bearing between the line features and see how close they come to the control. The start point can be unmarked, or alternatively marked with tape.

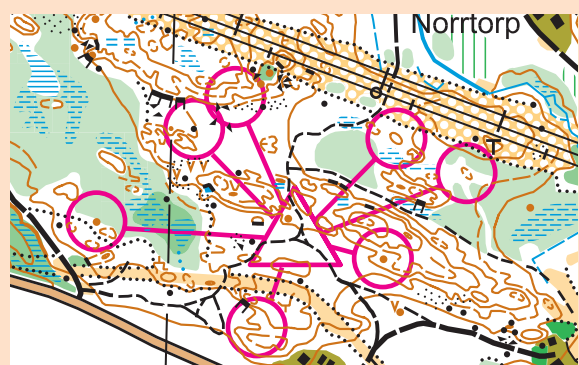


Compass course

Set a course where the aim is a mixture of fine compass bearings and rough compass bearings. Point out to the runners that they should vary their tempo, i.e. have a slower tempo for fine compass bearings and a faster tempo with rough bearings.

Compass stars

Start from a clear star point. Spread out a number of control points in the terrain in the shape of a star. Set the difficulty level so that it is appropriate for those that will participate. On the way to the control the runner uses a fine compass bearing and on the way back to the start point they should use a rough compass bearing.



Tips!

The compass stars exercise is the perfect opportunity to shadow a number of the runners and see how their compass technique is going.

Understanding distance and pacing

With today's modern and detailed maps the need for pacing has reduced compared with previously. But let us establish two things:

- It is important that the runner has a feel for distance in order to achieve flow in their orienteering.
- There are opportunities when pacing is very useful. Such opportunities are typical when orienteering in Gotland or other flat and sparse terrain, on a sparse slope or when night orienteering.

The following elements are important to teach in order for pacing to be as simple and accurate as possible:

Count every double step. If the runner counts every step it is hard to keep up. The runner should learn how many double steps they have, for example over 100m of normal

forest running. If the runner takes a meter long step it will be 50 double steps per 100m.

The runner needs to learn to correct the number of double steps depending on the terrain. If the terrain looks challenging, or if it is uphill, their steps will be shorter and therefore the number of steps will increase over 100m. If they are, however, running on a path or track, or downhill, they will take longer strides and therefore have fewer steps over 100m.

Then it is time to practise. The aim is that the counting will become so automatic that the runner will not have to think about it.

Simplifying and structuring – stopping points or highway

To simplify the map picture means that the runner makes the map picture easier to understand by seeing the larger, clearer features.

Example of exercises for understanding distance and pacing

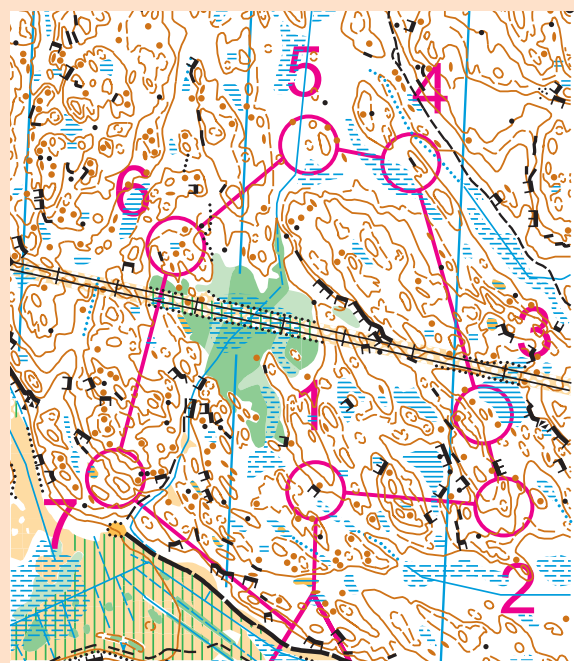
Practise understanding distance

This exercise is carried out in pairs or in a group. Mark out a leg on the map, but do not mark the control points in the terrain. One of the runners quickly looks at the leg and builds an idea of how long they think it is in their mind. They then put the map in their pocket. Their partner, or the leader, runs in front of them so as to maintain the right direction. Each runner stops when they think they have run far enough and stands still. You, as the leader, then stand yourself at the control point and call out to all of them. Discuss the result. Understanding distance is best practised at competition speed.

Pacing

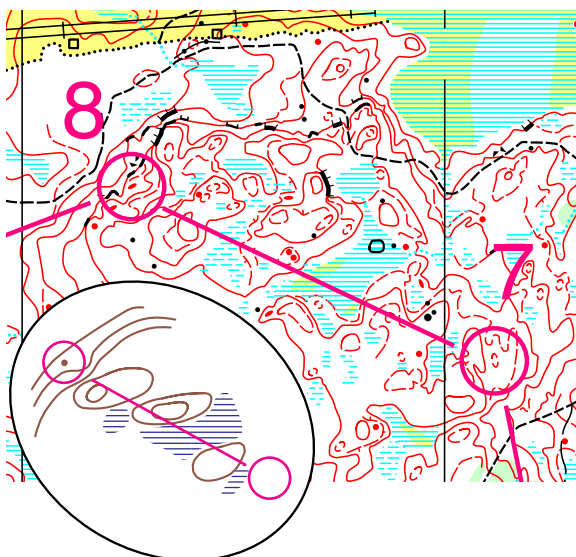
You can also use the above exercise as a pacing exercise. Have the runners measure how long the leg is and then pace to the control point. When their calculated number of double steps has been run (for example 45

double steps for a leg of 100m) they stop. When you stand in the correct place for the control point the runners can see if they have run too far, not far enough or just right.



This is also called rough orienteering and the aim is to be able to orienteer faster.

If the runner reads and takes consideration of all of the details it'll take much too long and also be unnecessarily difficult. When you simplify the map there are fewer details to pay attention to in your map memory.

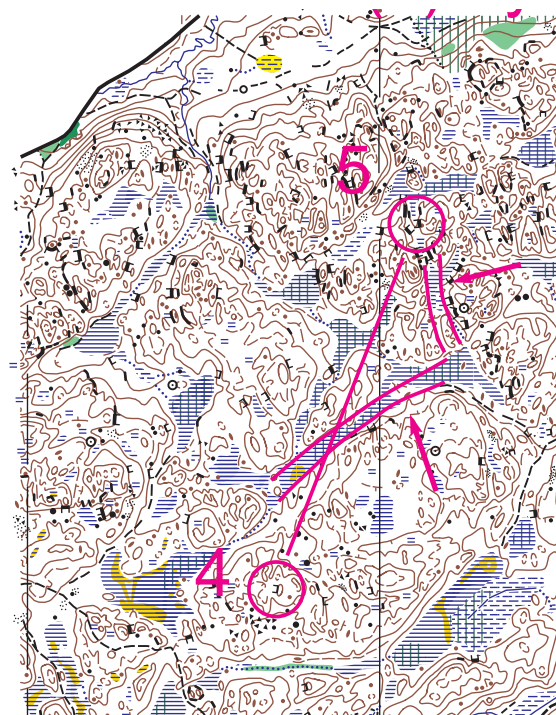


An experienced orienteer finds it easier to see and remember more terrain details than an orienteer with less experience. Aside from this an experienced orienteer has also trained up the ability to identify the most relevant details and structures in order to complete an orienteering leg. When a runner simplifies the map picture it also gives them structure which they can use for rough orienteering. Most importantly the runner can use two forms of route planning; “highway” orienteering or orienteering using stopping points.

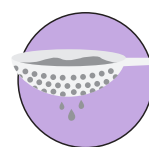


“I am using the marked marshes as stopping points”

Experience has shown that “highway” orienteering is safer than hopping between certain points and should therefore be chosen if possible. However there isn’t always a clear “highway” to choose on a leg and often a combination of the two methods is carried out.



“The first clear “highway” is the marsh/edge of the hill to the north east. When the marsh ends and I run to the next hill edge, I run north and the marsh leads me between the hills”



The simplify and structure tool

Map memory exercises are good exercises for simplifying and structuring as the runners are forced to choose what they can memorise and how the details are structured. To train simplifying/structuring it is also appropriate to practise theoretically. For example if you send a map around the table and everyone draws a simplified version of respective legs. They can hold the map for a maximum of 30 seconds per leg. Compare with one another and discuss, if necessary, the similarities and differences in what they understand to be important and therefore included on their map sketches.

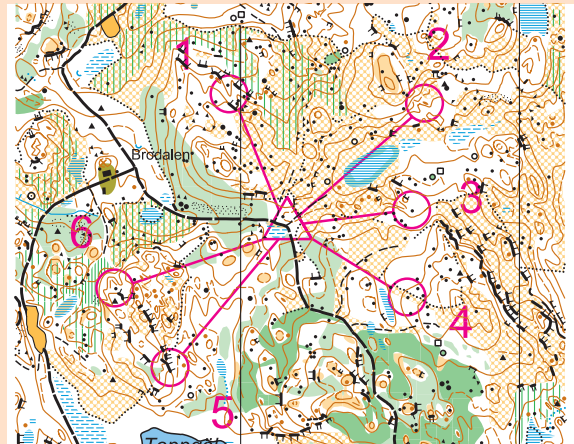
Example exercises for simplification/structuring

Golf match

Carry out the exercise in groups of two. Every pair has one map with a course drawn on. Runner A reads the first leg for 10-20 seconds and then leaves the map and goes to the control. Runner B follows after with the map. If runner A is unsure they can stop and read the map for another 10 seconds. The number of times runner A stops within the leg is their result for that leg. If they complete the leg without stopping then it is a “hole-in-one”. The runners switch roles at every control.

Draw your own map

This exercise is appropriate to carry out as star orienteering. At the start point there is a map with all of the controls marked on and blank paper and coloured pens. The runners have to draw their own map. So that they don't spend too much time drawing in too much detail they will need to simplify and structure. Then they test out their map,

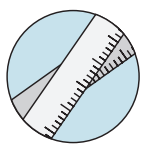


find the control, return to the start and do the same again for the other controls. This is a really good exercise for those who usually complain about the map!

A variation of this exercise is a pair exercise where there are two loops. The runner runs their own loop first, with a real map, draws a map on paper and then their partner runs the loop and at the same time they set off with their partners hand drawn map.

Alternatively you can use an overhead projector to show the map.

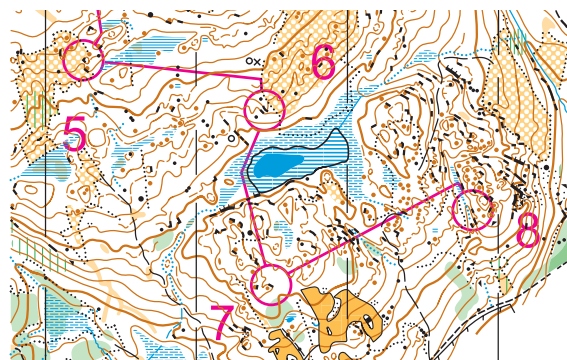
Taking the control



The ruler tool

This tool is mostly used for taking controls in order to make orienteering quicker and safer. Through using clear “highways” and features that lead you into a control the leg has been simplified.

As a leader you can set a course where there are obvious opportunities to use this extension tool. You can then give the runners different aims for the exercise, for example, “Today you will extend the taking of a control in at least four situations”.



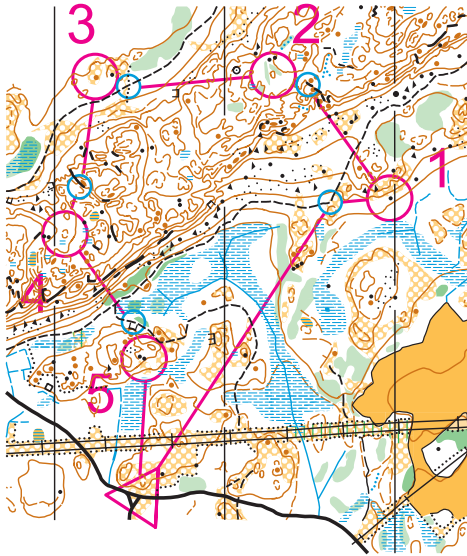
Here the runner has extended the control in the following way:

- C 6 – Through using the vegetation boundary as a catching feature and then following it into the control.
- C 7 – Through following the large re-entrant as a natural path to the control.
- C 8 – By aiming to the left of the control, letting them self be caught by the marsh and edge of the hill and then following the edge of the hill into the control.



The attack point tool

In the chapter on contours the attack point tool was mentioned in terms of the highest hill. The runners can also use different features as attack points, for example large marshes, obvious crags and line features. If the control is in a difficult area it is important to find a safe point as close to the control as possible.



In this picture the attack points are marked with a ring. Consider that some attack points are better than others and see if you can see alternatives.



The gear changing tool

To use this tool of gear changing it is also important to master fine and rough orienteering as well as fine and rough compass bearings.

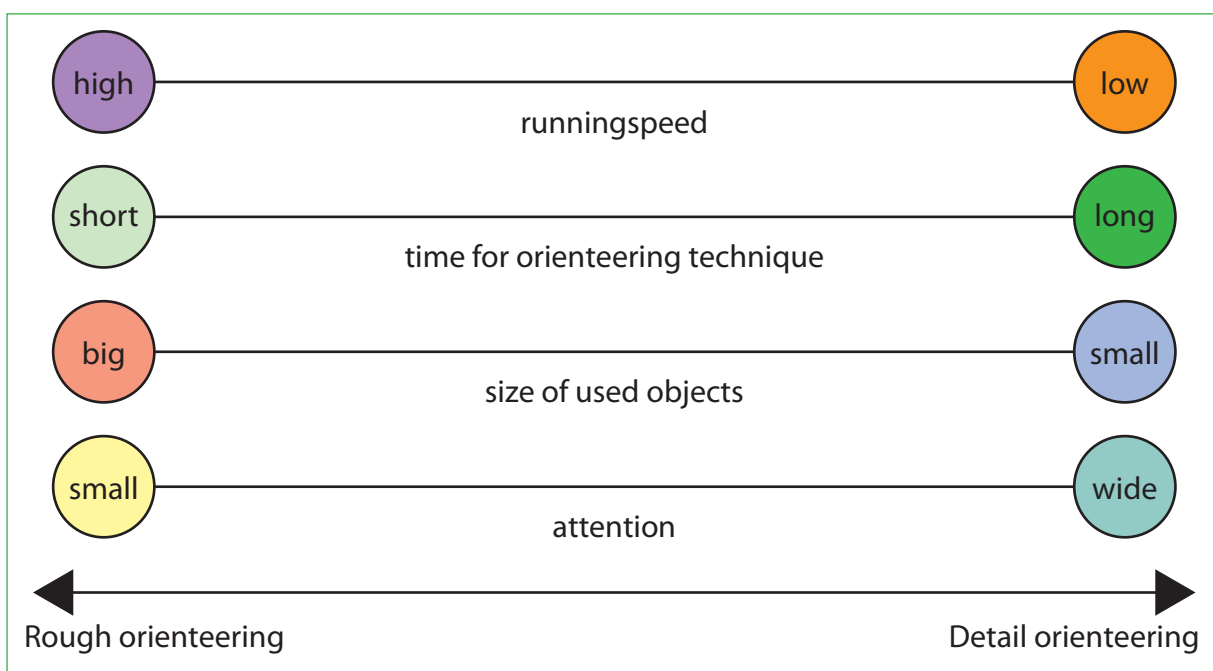
It simply means that as the runners approach the control the orienteering gets more difficult and it is important that they think to reduce their tempo. By reducing their tempo it is easier to read more details on the map and use the compass. The brain also has a better chance of concentrating and making good decisions.

Fatigue means that the brain is less able to register and work out information. You have surely been with a runner, and maybe this has happened to you, with a high level of fatigue that has made a decision and done something that gradually seems unintelligent.

The runners should also be aware that the course planner tries to “trick” the runners to hold too high a tempo for example having easy orienteering followed by short, technical orienteering.

In the following situations a reduced tempo is an advantage:

- In a difficult section of orienteering in the area of the control.
- In thick forest with bad visibility.



- In areas without much detail where an accurate compass bearing is needed.
- At the beginning of the course when the runner is maybe a little eager and hasn't yet found the flow of their orienteering.
- Straight after a mistake when a runner is off balance and may have lost their orienteering flow.
- Where there is a risk of a parallel error.

In the following examples a higher tempo can be an advantage:

- With simple orienteering along a line feature.
- With rough orienteering towards a clear line feature.
- On the finishing stretch.

Exercises for training changing speeds

Traffic lights

Set a course with legs that exaggerate the differences between easy orienteering sections and harder sections. Before the runners run the course they should be allowed to look through the legs, and with small lines mark where tempo increases and decreases should be carried out.

An alternative is to carry out the exercise in pairs when they alternate who runs first for each leg. After each leg they can have a short discussion about whether they agreed on the speed adaption in terms of red-yellow-green. Obviously the traffic light can have a varied order. The lead in can be easy (green) and the middle of the leg can be difficult (red) etc.



Green = High speed and rough orienteering.

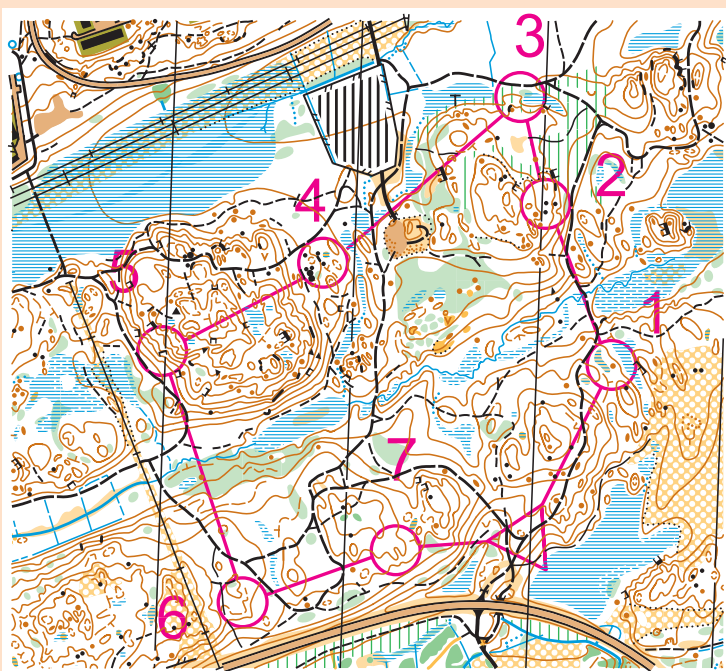


Yellow = Reduce tempo and read more details on the map.



Red = Here it is appropriate to be accurate with the map reading and maybe even with the compass. Reduce the tempo!

Consider that the traffic light should adapt your orienteering technique and speed in accordance to the courses difficulty. Split your route into 3 colours, depending on which technique and speed you think you should use.

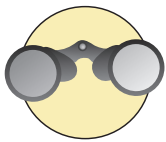


The electric light hop

Set the course along a lighted track or another clear path. Along the track place out orienteering kites that the runner will pass before reducing speed and running into the forest to a difficult control. This provides clear tempo changing.

Advance planning

In order to have a good flow in map reading it is important that the runner has a plan about how the leg should be run and that all the time they think; “that’s where I am going – this is where I am”.



The advance planning tool

The tool relies on the runner always thinking ahead so it is not possible to be surprised by the leg. The tool can be hard to learn as it assumes that two thought processes are carried out at the same time. It is about where on the leg the runner is now and reading what is going to happen.

Tactical thoughts

As a leader you should teach them to think tactically as an orienteer. Therefore they need to have a good knowledge of their own strengths and weaknesses as an orienteer. They need to know which route choice is optimal for them and their orienteering strengths – is he/she a quick runner, strong runner, skilful orienteer?

To think tactically also means using the correct tools in the right situations. A further part of this tactical thinking is to master different terrain types. Different terrain types have different requirements and require the use of different tools. Therefore as a leader it is important to find possibilities for the runners to run in a variety of terrain types. Training camps in new places are an excellent opportunity for this.

Exercises for advance planning

Running control

This exercise is carried out as a pairs exercise on a normal course. Runner A, who runs first, has no map and doesn’t know where the control is. Runner B, who runs behind, has the map and gives instructions all the time to runner A. The point is that runner A should understand where he/she is on the route which means that he/she assumes that runner B has thought ahead. It is important that the runners give lots of instructions of a map reading nature and don’t just say “run in this direction” or “run 200m south”. An example of a good instruction is “Follow this ridge north for about 200m where you will come to a large marsh, where you turn 90 degrees to the left and soon come to a road when you immediately take left.” The runners should switch roles at the control.

Night orienteering

The thing that makes night orienteering so exciting and such a unique challenge is the reduced visibility.

When the visibility is reduced the runner is forced to, among other things:

- Be more accurate with the compass and direction.
- Be more accurate with their map reading and cannot rely on simply relocating later as is possible with day time orienteering.

- Route choice must be more decisive. The runner must have thought it through before he/she leaves the control. At night it is more time demanding to correct a badly carried out route choice.
- Tempo changing is more obvious as the courses often have a mix of easy orienteering on line features and forest orienteering that is generally difficult at night.

With consideration of the above points night orienteering is a good method of developing accurate compass bearings, accurate map reading, tempo changes and route choice even for day orienteering.

The competition element

With the competition element we meet a number of exciting phenomena and a number of other factors that mean that orienteering techniques are also important.

The first element in a competition is time, and with this speed, which are important in a number of elements:

- Taking the control; punching, reading of control descriptions etc.
- Reading the map whilst running.
- Compass work.

- Interpreting the map, evaluating and making a decision.

The second element in competition is the runner is prepared for the psychological factors such as:

- Self confidence and feelings.
- To concentrate on the right things and handle distractions.

The adjustment between speed and safety is also a tough test. Also remember that the skill of reading a map at competition speed (running in the forest + map reading + understanding the terrain) is something that needs to be maintained.

Park and sprint orienteering

Sprint orienteering today is an accepted concept for these intensive forms of orienteering and it can be carried out in different terrain types, for example in forests, parks or built up areas. This new form of orienteering is a good example of what the competition element means to orienteering. To run in park or sprint orienteering at a locked tempo means the orienteering is relatively simple orienteering and the risk of missing controls is low, if you have good routines and experience.

Exercise examples – to manage disruptions and concentrate on the right things

Model training

A good session to train concentration is to carry out a course as similar to a competition as possible and with a number of distracting elements included. These distractions can include:

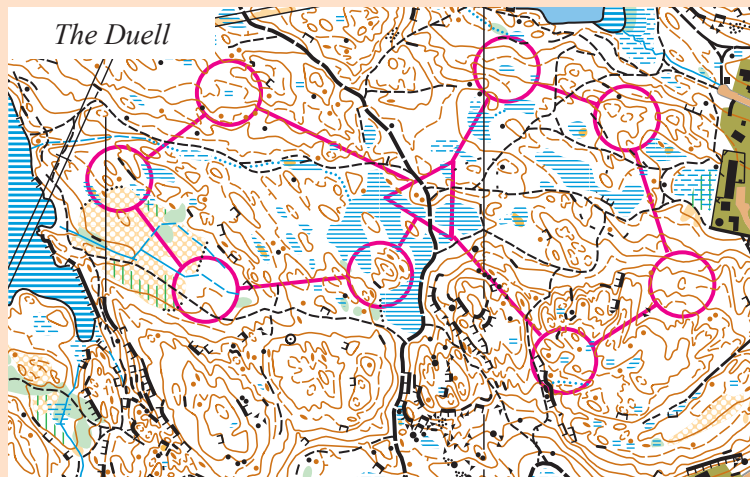
- Video camera or spectators at one of the controls.
- Crossing runners and competitors.
- Other controls in the area that the runner will run in.

- That the runner has their compass taken away because it has broken.
- The runner gets a wrong time inspiration at a control.

As well as the runner training the management of distractions this exercise is a good opportunity to discuss concentration and psychological factors that influence the orienteering process.

The duel

This exercise has a competition element and is carried out in pairs. Set a number of courses with the same start point. On every course the runners compete in pairs and run at the same time, running the course in different directions. The first runner back to the start point again has won the duel. Then it is good to either encourage another to duel or for the runner who did not win to try for revenge on a different loop.

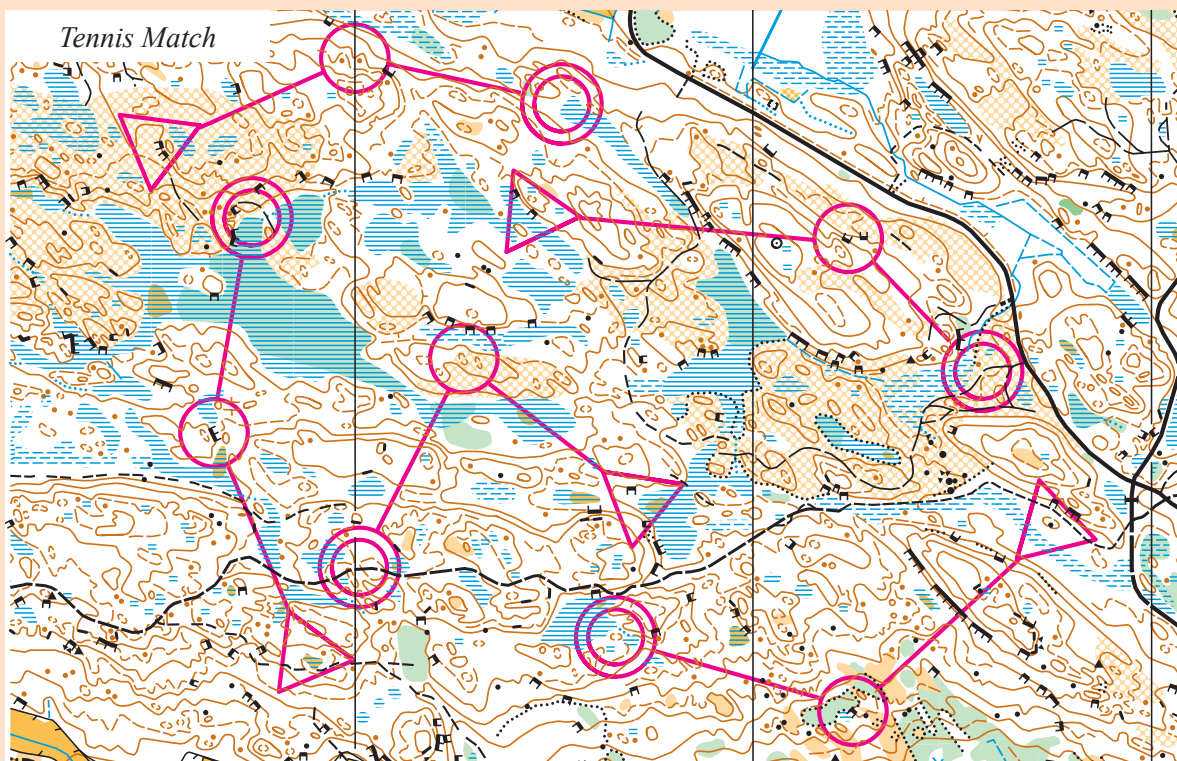


Blind controls

This exercise trains the skill of holding concentration of map reading when the runner comes into the control circle and not being distracted by other controls. Set a normal course. Set a control kite at every control point, but without control codes. Then set a number of visible extra control kites out in every control ring, which are not marked on the map. The runners aim is to punch the correct control which requires a high level of concentration with map reading and that they study the control description.

Tips for a harder variation!

To carry out this exercise as a group exercise makes it harder and it becomes a form of relay training. Have the runners start at the same time and run in a group. However, give them different control points and therefore different courses marked on the map. When they come to the area with all the control kites they are required to trust their own map reading and not be influenced by the other runners.



Tennis match

This exercise, with an element of competition, should be carried out in pairs. The course consists of a number of shorter sections, called "games". The runner that "serves" in the first game starts about 30 seconds before the other runner. The runner who comes to the finish of the short section first wins the game. After each game the runners move to the next start point and change server.

In a competition the runner is more stressed and the adjustment between speed and safety makes the challenge something completely different. To run sprint orienteering with different forms of competition is therefore good training for:

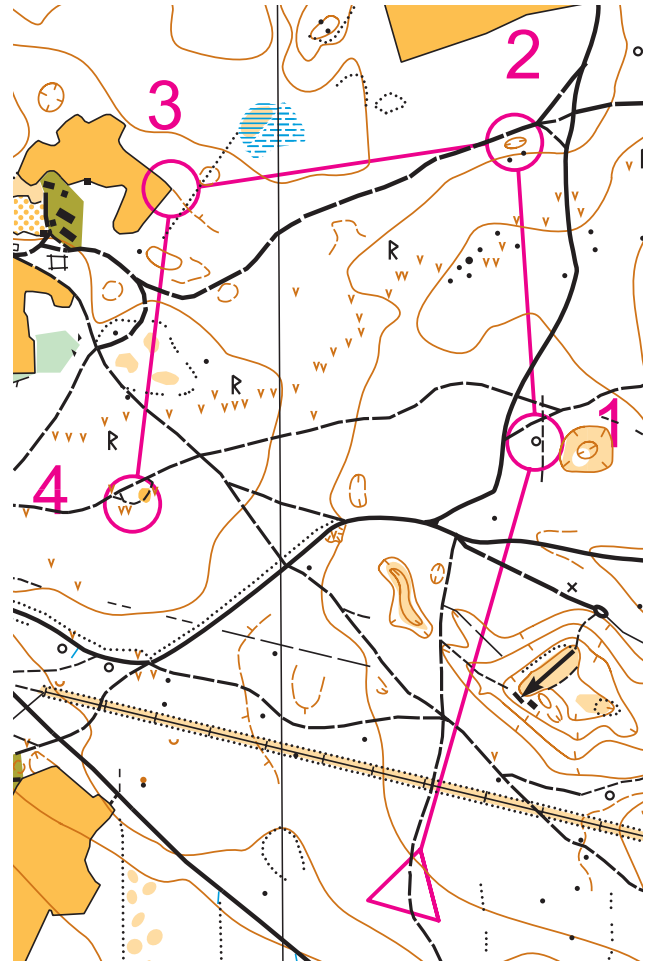
- Managing stress when the smallest mistake can be conclusive.
- Perceptual speed (to quickly understand the map and the terrain).
- Making fast decisions, e.g. with a route choice.

It is important to emphasize that sprint orienteering isn't so simple for younger and less experienced orienteer's. Even if it is line feature orienteering that is required it is a lot of information which needs interpreting and evaluating compared to forest orienteering.

Forest orienteering

An example of what the runner might read and think from the start to control 1, about 360m:

I run along the path north, passing under the power line. At the big path junction I continue north up to the larger track. There I turn left and run for about 30m and turn right onto a new track all the way until a path joins from the right. From there I go straight in, east, for about 20m to the control.



Sprint orienteering

An example of what a runner might read and think between controls 3 and 4, about 175m:

I turn north and see a house exactly north west of me and a large house north east of me. I run to the concrete area and follow it north east towards the large house. I then follow the edge of the large house until the end of the building. I then turn the corner and will see two new large houses that I run in between. When the house to my right finishes I turn the corner, and will see a new, smaller house that I run towards. From there I run north east over the concrete area and will see the control out on the grass area.



The leader's feedback and technique analysis

As we have previously illustrated it can be difficult to observe a runner's orienteering technique as it is all about processes in the brain. All the information about their own technique performance is also with the runners themselves and the availability of the information depends on how much he/she can communicate about their orienteering. Achieving good conditions for the correct analysis of technique relies on the coach's ability to talk to the runner, making them communicate their thoughts. This is an important tool.

Build confidence

In order to gain access to the runners' thoughts it is important that the runners feel confident. You can do this through meeting the runner where they feel themselves.

You can gain more concrete expressions if you:

- Don't just hear what the runner says but try to understand what he/she means.
- Use words, language and a tone that the runner recognises.
- Put yourself at the same physical level as the runner, for example by sitting on a stool when you are talking to children, or by using the same body language as the runner.
- Meet the runner at their knowledge level.
- Use the sense channels that the runner has as their main communication channel. The three most common are visual (what you see), auditory (what you hear) and kinaesthetic (what you feel and do).
- Assume and consider the runner's aims and needs. The reasons for running and training orienteering can differ. For some it is maybe important to meet friends, for others it is to learn more and for others it is the fight, the competition and the result that is most important.

Through using open questions and sorted feedback you provide the runner with the opportunity to discover their thoughts and experiences.

Open questions

When you talk to a runner it is important that you gain prerequisites in order for their thoughts to come forward. You can do this through:

- Avoiding questions which can be answered with yes or no, such as "were you stressed when you saw the runner in front of you?"
- Avoiding leading questions, such as "how much better will you be if you train orienteering technique an additional session every week?"

Use open questions instead. In the two examples above the questions should be phrased as followed:

- "What did you think when you saw the runner in front of you?"
- "What do you think will happen if you train an additional technique session each week?"

The runners are then forced to think about and make up their own mind on an answer which has more depth to it.

Sorted feedback

When a trainer talks to a runner it is easy to quickly communicate the trainer's thoughts and interpretations around what happened, without letting the runner reflect them self. In your feedback you need to differentiate between what you as the trainer experience with your senses and what you believe:

- Give the runner the opportunity to reflect and make up their own mind.
- Show that you respect their feelings, thoughts and experiences.

The following situation is an example:

You are standing at the start of a competition and realise that one of your runners is very nervous. He/she is running around all of the time, mumbling to him/herself, forgetting to put on their number and goes to the toilet a number of times. You then meet them at the finish run in and instead of saying “I saw that you were nervous” (which is your interpretation of the situation) you can start up the conversation in a different way: “I saw that you went to the toilet a number of times” or “I heard that you were mumbling something all the time before you started”. Then ask a number of open questions: “How did you feel before you started? How do you think your relaxation was? Do you want any tips on how to prepare yourself before you start?”.

Strengthening the runners self confidence and self-esteem

An important job for a trainer is to ensure that orienteering technique improves. In the coaching conversation you can also strengthen the runners self confidence and self-esteem.

Self confidence and self-esteem are two concepts that are often combined and hard to hold apart. Researchers state in scientific literature that there are different interpretations of what the concept really means. We have chosen to explain these two psychological phenomena in the following way:

Self confidence is the individuals own understanding of their skills in specific areas. Someone can have good self confidence in orienteering and low self confidence in singing. It can also be so specific that self confidence is good when a runner orients in one area/terrain type and he/she has much worse confidence in a different terrain type. Self confidence is about the different things someone does. It is specific and can change really quickly. Some less successful orienteering runs can lead to a quick reduction in self confidence.

With good self confidence:

- Gives positive energy and runners dare to take on challenges.
- The runners believe in themselves and are not as influenced by other runners.

You can strengthen self confidence through:

- Letting the runner succeed! It is important that the runners take on challenges of the right standard for their ability and that they are prepared with the correct tools and techniques.
- Giving lots of praise!
- Focusing on the things that have gone well. Through electronic punches there is the excellent possibility to find legs and sections that worked well even if the end result wasn't as successful.
- Observing what language the runners use about themselves and encouraging them to praise themselves.

Self-esteem is an individuals understanding of their own worth

This is to say – “am I ok regardless of how I perform?”. Self-esteem is more a general characteristic, is more stable and is more about who you are and not what you do. Good self-esteem isn't as easily disrupted, but on the other side it takes longer to build up low self-esteem. For orienteering processes and competition performance it is important to have both strong self confidence and strong self-esteem.

With good self-esteem:

- A runner is less worried about failure. A less successful effort doesn't contribute to their view of them self.
- The runners dare to make use of their maximum capacity and are not cowardly.

You can strengthen self-esteem through:

- Complimenting the person by bringing up and praising personal qualities.

- Showing interest in the runner outside of the sport, for example by asking how their job is or how school is going. Or learn more about the other interests they have.
- Allow the runners to take responsibility themselves in relation to their maturity levels. This is important in a sport like orienteering where runners cannot have help from trainers throughout the course.

Technique analysis

In order to achieve the best possible training session it is important to remember that before and after the session itself is also technique training.

Before a technique session:

As a trainer you should gain motivation and curiosity for the training session by:

- Explaining the point of the exercise and pointing out something specific that the runners should think about during the exercise. Consider using both visual and auditory aids to describe it. As well as telling them the aim you can give out some text or pictures that also describe the exercise.
- Relate the exercise to an approaching competition that many of them have as an important aim. An example can be "today we will rain changing tempo and taking controls safely. This will be important in the weekends SM which is in detailed forest with difficult orienteering".
- Emphasize that it is important to prepare before the training session, both physically and mentally. Physically by being well rested, having eaten enough and being well hydrated. Mentally by thinking through what they will gain from the session, clearing their minds of daily thoughts such as a maths test, a present for their mother, trouble with their boyfriend etc.
- Letting the exercise be carried out in pairs or groups often increases their motivation.

During the technique session:

What you as a trainer can provide throughout the session depends on your roll. Maybe you only meet the runners at the start and finish and in this case there is not much you can do. The possibilities arise at common points, for example with star orienteering and loops.

You can:

- Remind them of the aim of the exercise. Preferably use key words to quickly regain their focus onto the correct things.
- Check that the runners go to appropriate controls or loops depending on how the session has gone already. If it has gone badly they should maybe "start again" with something easier.
- Encourage the runners.

Maybe you want to run after a runner throughout the session. In this case you should decide with the runner, before they start, if they would like feedback throughout the exercise or if you should wait until afterwards.

If you are giving feedback throughout the exercise you should consider the following:

- Give more praise than criticism.
- Don't be too quick to correct a mistake. Give the runner the opportunity to realise and correct the mistake.
- Remind them to take a "time out" if it goes wrong. Stop for a while and go through what they should concentrate on based on the aim of the exercise.

After the training session:

- Remind the runners to quickly replace fluids and carbohydrates and change into dry clothes to minimise the risk of getting cold.
- Make sure that they go through the course with you or a training friend. They should identify what they are not satisfied with and think about what they could have done

instead. Even more importantly they need to identify what went well during the session and try to find reasons for this. This reinforces the positive sections. Even if the runner thinks that everything went badly in the training make sure that they find something that they are satisfied with.

Orienteering techniques season plan:

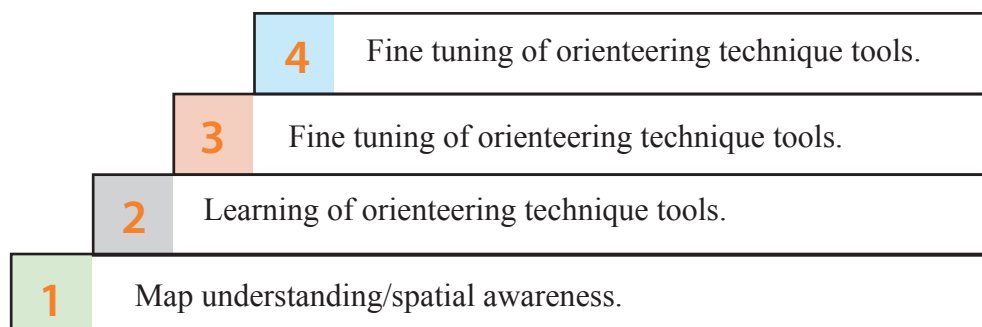
In order to optimise the dividing up of physical training the year is split into different periods which make up the season plan. The season consists of base training with a high quantity of training, a competition preparation period where intensity increases and in the end a top form period with less training but of high intensity.

In the same way are there good reasons to make a season plan for orienteering technique. If you, as the trainer, are responsible for the club's technique exercises it is obviously a good opportunity to try out your ideas. Scientific evidence for your thoughts and ideas about a technique season plan is a good starting point for you to systemise the technique training but does not need to be shared with them. Naturally there are differences between individuals that you need to consider but having a base structure that you can start from is very worthwhile.

Educational tips:

When you plan your runners development of orienteering technique it can be helpful to think of the technique training in the form of a ladder. Every step on the ladder symbolises a competence level and in order to progress to the next step you need to understand the step you are on.

Technique training – learning ladder:



Step 1

Map understanding and spatial awareness (orienteering's base training).

Understanding the map is about relating the map to the terrain and the terrain to the map, called map transference or map feeling. Spatial awareness is about training the skill all the time in your own position in relation to the surroundings. It can be an advantage if the exercises are carried out at a low tempo, preferably walking pace. The more terrain details you include from the map the better.

Step 2

Learning the orienteering technique tools (see the chapter on the technique tool box) wit the teaching of any new skill it is important to consider the following:

- Be accurate with the explanation of how the tool works and when it should be used.
- Avoid the competition element, timing etc.
- It is important that the runner does it right. Have an appropriately low tempo and /or shadow them.
- Repeat the element numerous times so that the thought process becomes automatic.
- Go from controlled to open exercises.

A controlled exercise means that you mark a point, such as an attack point, or you run before the runner describing what you are thinking and that you are passing your attack point. Open exercises are when the runners are forced to think how the leg should be run themselves.

Step 3

The fine tuning of orienteering technique tools. This can mean that:

- Train at a high tempo that is approaching competition speed without the runner losing control of their map reading.
- Add in the competition element.
- Don't set courses that are too long for the runners to have the energy to run at a high tempo and concentrate at the same time. It is important that they orienteer correctly.
- Add in distractions (see model training).

Step 4

Competition preparation. To prepare for a competition can mean that the runner:

- Trains specific preparations before, for example championships, an important relay or another important competition.
- Train in relevant terrain types.
- Train different competition disciplines – relay, night, mass start, sprint etc.
- Route choice analysis with timing

A technique is properly understood when it has become automatic and can be carried out without as much concentration. It is an important element that these skills become automatic. For example, with the named tools, running in the forest and map reading, checking direction when you cross a line feature and control work. The more that is automatic the better prepared they are for the unpredictable. Always be prepared to go back through the different steps to repeat and reinforce them if you notice that a runner has moved forwards too quickly and has not fully understood a tool or not yet made it automatic.

You can also use different types of courses and have the runners run alone, or in pairs or groups, with or without a trainer in order to achieve different learning situations. Different types of courses include a normal

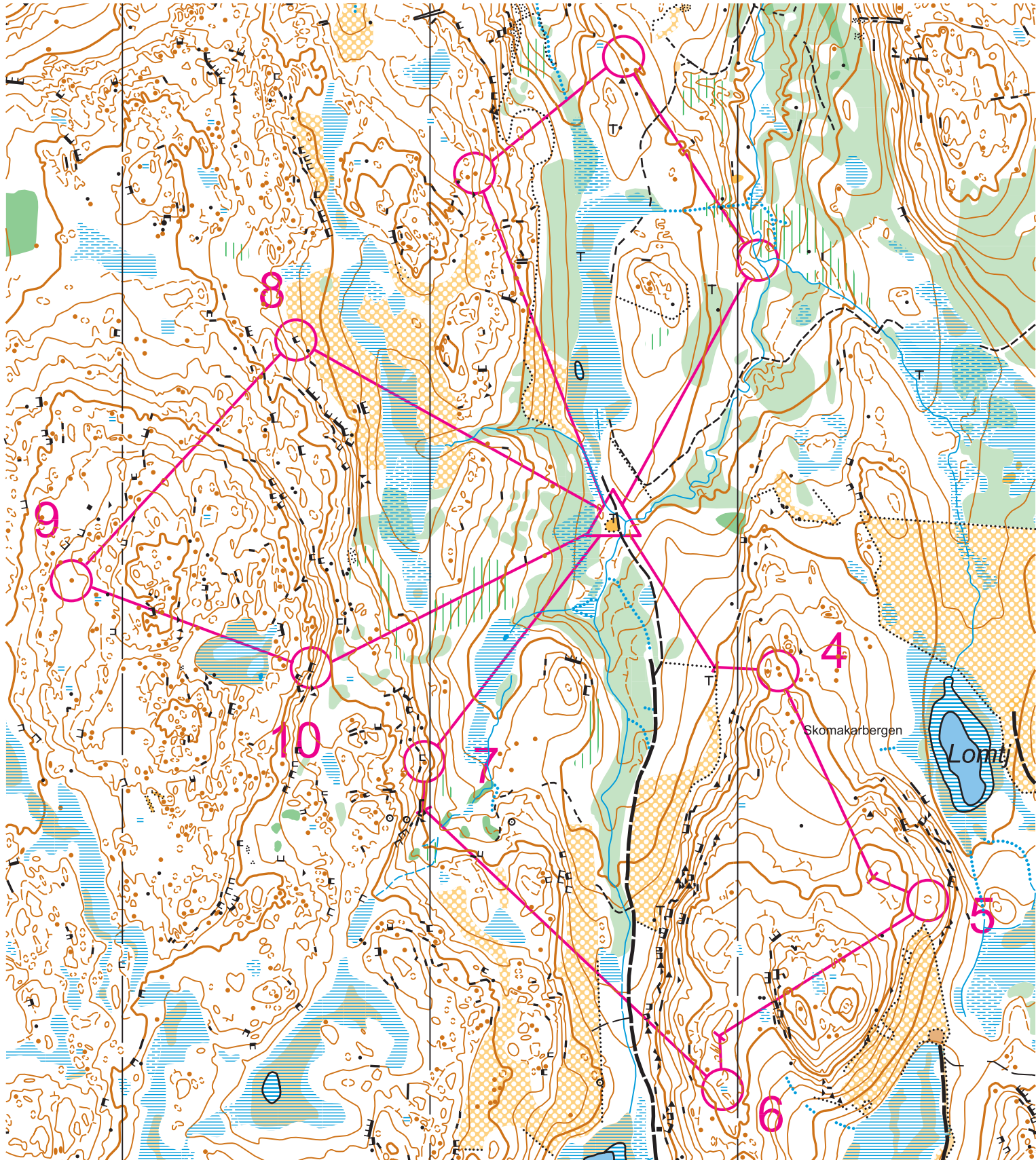
course, star orienteering and the three leaf clover.

A normal course is the most like a competition situation and is therefore the best form of training before a competition. This type of course also increases your possibilities to find the correct difficulty grade and right elements when setting the course, as you are not in such a confined area.

Star orienteering is especially appropriate when introducing a new skill or a new tool. The form of the course should give you the opportunity to talk to many of the runners throughout the exercise at the start point, or you may even be able to shadow a few runners. If you have a group with a broad range of abilities you can assemble the group in one place and individually adapt the exercise. The more experienced runners go to some harder controls and maybe more controls throughout the training. Another advantage is that you can place yourself at the start point in order to motivate and inspire the runners to find another control. The runners also have the possibility to “start a fresh” if they miss a control. The star orienteering course can be a safe course for runners to meet a higher difficulty grade as they are never too far into the forest.

The disadvantage of the exercise is that runners lose orienteering time as they return to the start point. Another disadvantage is that as a trainer, or the course planner, you are restricted to a small area and it can be hard to find appropriate legs and controls.

The three leaf clover is actually an extension of star orienteering and has the same advantages but to a lesser extent. A three leaf clover is also perfect to use if you want an increasing difficulty grade, or if you want to introduce a new tool. In this case you can work in the following way:



Loop 1 – you run with the whole group and explain how they should think.

Loop 2 – the exercise is controlled in a way that the runners are steered in the right way through the marking of the course on the map (see the above map).

Loop 3 – a normal course where the runners

themselves must look for the possibilities that exist and make their own decisions.

Your instructions

As a trainer it is important to consider how you give instructions and which words you choose.

Be clear with your instructions and ensure that the runners understand what you mean. It is better to explain too many times than too few.

Preferably use symbols to make abstract ideas clearer, for example tool metaphors.

Vary the way in which you give instructions and use different learning methods to achieve “ah ha” experiences with the runners.

Give positive instructions and avoid negative instructions. It is better to say: “look at the map a lot in the beginning so that you spike the first control” and not to say “don’t run so quickly at the start that you miss the first control”.

Final tips – the trainer as a course planner

It is easy to be frustrated as a course planner when you are in a certain terrain area and want to train a specific element. Certain technique elements can’t be trained in just any terrain or are not sufficiently clear to the runners. It is therefore important that you plan the exercise from the map – and terrain material you have at your disposal.



