

# Better Orienteering



Web linked to  
[Betterorienteering.org](https://betterorienteering.org)

## Better Orienteering Summary Duncan Bayliss



BetterOrienteering.org

Improve your orienteering skills



Beginner Intermediate Advanced

Videos Skills Tool Kit Free downloads Navigation strategies

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# Better orienteering

## What is included ?

[New to orienteering](#)



[Basic Navigation Routine](#)

[Plan, Picture, Direction](#)

[How well am I orienteering?](#)

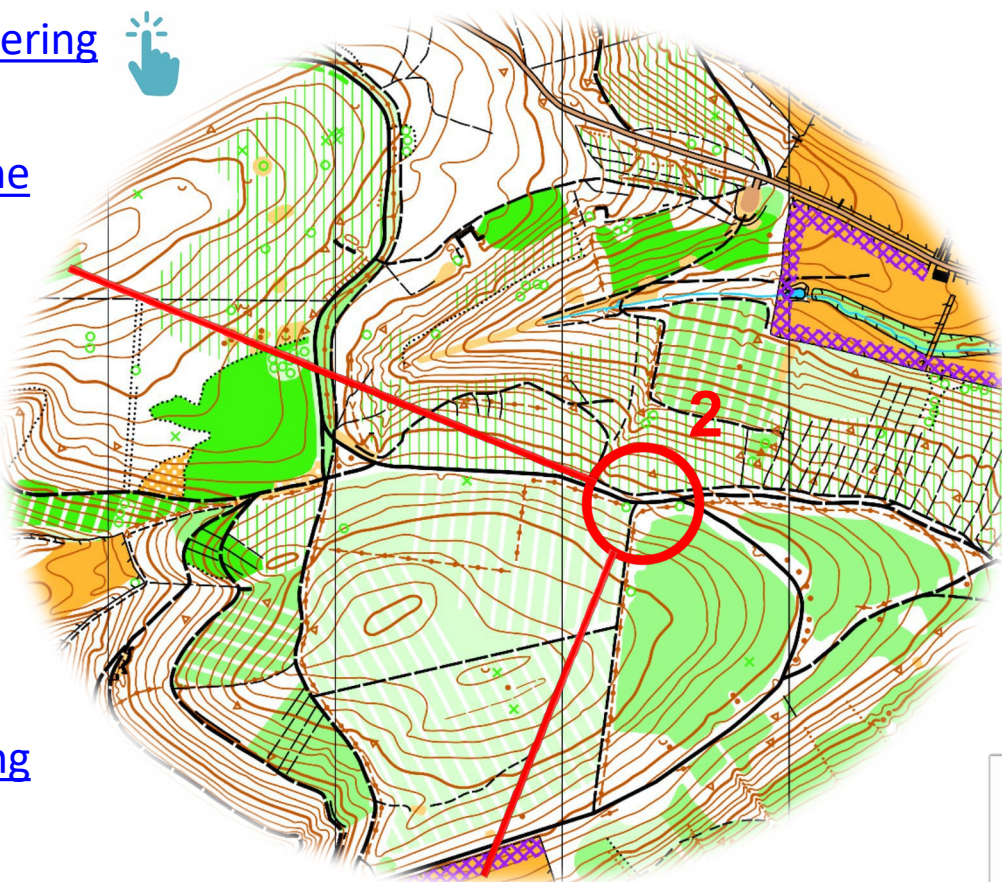
[Skills Tool kit](#)

[Better Orienteering  
Navigation model](#)

Click on a heading to  
go to that section  
In this document



[Race analysis](#)



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[Each info-  
graphic  
can be  
downloaded  
separately](#)

Use this summary together with the Betterorienteering.org website



# Better Orienteering

Skills are explored in stages from Beginner to Advanced to help you progress



A key principle of Better Orienteering – Orienteering skills are explored in a **visual** way with graphical summaries, diagrams, and videos

Use this summary together with the Betterorienteering.org website



# Better Orienteering

## Beginner

New to orienteering

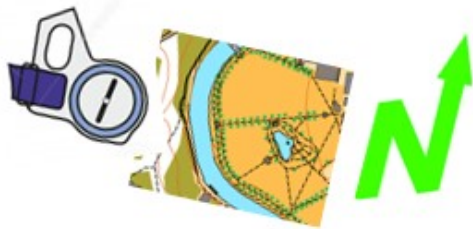


Try this introductory video first



## Better Orienteering

### New to orienteering? Here's some tips



Keep the map lined  
up to north

scale 1:10000, contours 10m  
500m

Know the scale

1:10,000 1cm on map = 100m on the ground  
1:7,500 1cm on map = 75m on the ground



Fold the map  
Thumb on map  
where you are



Know what the symbols mean  
(see other side of this card)



It is OK to walk  
You can lose more time  
by running in the  
wrong direction



Dib each control in  
order with your timer



Orienteering is not the same as  
using a smartphone or road atlas



**When you finish always go to  
download so that a search is not  
sent out for you**

Duncan Bayliss

[betterorienteering.org](http://betterorienteering.org)

Version 4.0 2020

These tips help  
beginners understand  
the basics they need to  
orienteer

If you download them  
separately from  
[Betterorienteering.org](http://Betterorienteering.org)  
they are scaled for easy  
viewing on a  
smartphone



### Colour coding of courses explained



Easy / Short



Beginners and juniors



Technical courses



Hard / Long



## A few symbols you need to know

A full key is on the next page



Start — Control – 50 metre circle



Finish



Small path



Larger path



Road



Contours showing the shape of the land



Open land



Runnable woodland



Thicker woodland



Fence - crossable



Fence – not crossable



Stream



Marsh



Uncrossable area e.g. buildings, gardens



Out of bounds –  
Do not enter or you will be disqualified

[betterorienteering.org](http://betterorienteering.org)

You don't need to know all the map symbols when you start orienteering

Here are some of the most useful ones for beginners

There is usually a full key on the map

Beginner's courses are planned so that you can follow line features such as paths, tracks and fences

As you try more difficult courses you will build your understanding of other map symbols



# ISOM 2017 Orienteering Map Symbols

## Land forms

|  |                            |
|--|----------------------------|
|  | Contour                    |
|  | Index contour              |
|  | Form line                  |
|  | Slope line                 |
|  | Contour value              |
|  | Earth bank                 |
|  | Earth wall                 |
|  | Ruined earth wall          |
|  | Erosion gully              |
|  | Small erosion gully        |
|  | Knoll                      |
|  | Small knoll                |
|  | Small elongated knoll      |
|  | Depression                 |
|  | Small depression           |
|  | Pit                        |
|  | Broken ground              |
|  | Very broken ground         |
|  | Prominent landform feature |

## Water and marsh

|  |                              |
|--|------------------------------|
|  | Uncrossable water            |
|  | Shallow water                |
|  | Waterhole                    |
|  | Uncrossable river            |
|  | Crossable watercourse        |
|  | Small crossable watercourse  |
|  | Minor/seasonal water channel |
|  | Narrow marsh                 |
|  | Uncrossable marsh            |
|  | Marsh                        |
|  | Indistinct marsh             |
|  | Well, fountain or water tank |
|  | Spring                       |
|  | Prominent water feature      |

## Man-made features

|  |                                   |
|--|-----------------------------------|
|  | Paved area                        |
|  | Wide road                         |
|  | Road                              |
|  | Vehicle track                     |
|  | Footpath                          |
|  | Small footpath                    |
|  | Less distinct small path          |
|  | Narrow ride                       |
|  | Visible path junction             |
|  | Indistinct junction               |
|  | Railway                           |
|  | Power line, cableway or skilift   |
|  | Major power line                  |
|  | Bridge/tunnel                     |
|  | Footbridge                        |
|  | Wall                              |
|  | Ruined wall                       |
|  | Impassable wall                   |
|  | Fence                             |
|  | Ruined fence                      |
|  | Impassable fence                  |
|  | Crossing point                    |
|  | Area that shall not be entered    |
|  | Building                          |
|  | Canopy                            |
|  | Ruin                              |
|  | High tower, Small tower           |
|  | Cairn, Fodder rack                |
|  | Prominent line feature            |
|  | Prominent impassable line feature |
|  | Prominent man-made feature        |

## Rock and boulders

|  |                        |
|--|------------------------|
|  | Impassable cliff       |
|  | Cliff                  |
|  | Rocky pit, Cave        |
|  | Boulder, Large boulder |
|  | Gigantic boulder       |
|  | Boulder cluster        |
|  | Boulder field          |
|  | Dense boulder field    |
|  | Stony ground: slow     |
|  | Stony ground: walk     |
|  | Stony ground: fight    |
|  | Sandy ground           |
|  | Bare rock              |
|  | Trench                 |

## Vegetation

|  |   |
|--|---|
|  | Open land                                   |
|  | Open land with scattered trees/bushes       |
|  | Rough open land                             |
|  | Rough open land with scattered trees/bushes |
|  | Forest: easy running                        |
|  | Vegetation: slow running                    |
|  | Undergrowth: slow running                   |
|  | Vegetation: walk                            |
|  | Undergrowth: walk                           |
|  | Vegetation: fight                           |
|  | Vegetation: impassable                      |
|  | Forest runnable in one direction            |
|  | Cultivated land                             |
|  | Orchard                                     |
|  | Vineyard                                    |
|  | Distinct cultivation boundary               |
|  | Distinct vegetation boundary                |
|  | Prominent large tree                        |
|  | Prominent bush or tree                      |
|  | Prominent vegetation feature                |

## Overprinting symbols

|  |                                   |
|--|-----------------------------------|
|  | Start                             |
|  | Control point                     |
|  | Control number                    |
|  | Marked route                      |
|  | Finish                            |
|  | Out-of-bounds boundary            |
|  | Crossing point                    |
|  | Out-of-bounds area                |
|  | Out-of-bounds route               |
|  | First aid post, Refreshment point |

## Technical symbols

|  |                     |
|--|---------------------|
|  | Magnetic north line |
|  | Registration mark   |
|  | Spot height         |



These are the symbols you need to refer to as you learn how to read orienteering maps



© Maprunner 2017.

Copies of these map symbols and of the IOF pictorial control descriptions can be downloaded from [www.maprunner.co.uk](http://www.maprunner.co.uk)

The ISOM 2017 specification can be downloaded from [www.orienteering.org](http://www.orienteering.org)





## IOF Control Descriptions 2018

This is a summary of the IOF pictorial control descriptions. Full details can be obtained from the IOF web site at <http://www.orienteering.org>

| A | B   | C | D | E | F      | G | H |
|---|-----|---|---|---|--------|---|---|
| 1 | 123 | ↓ | ○ | ■ | 15 x 5 | ○ | ☐ |

- A Control number
- B Control code
- C Which of any similar feature
- D Control feature
- E Appearance
- F Dimensions/combinations/bend
- G Location of control flag
- H Other information

### C - Which Feature

|   |          |
|---|----------|
| ↑ | Northern |
| → | Upper    |
| ← | Lower    |
| ↕ | Middle   |

### D - Control Feature

See below.

### E - Appearance

|   |               |
|---|---------------|
| — | Low           |
| — | Shallow       |
| U | Deep          |
| ■ | Overgrown     |
| □ | Open          |
| ▲ | Rocky, Stony  |
| ≡ | Marshy        |
| ■ | Sandy         |
| ▲ | Needle leaved |
| ☁ | Broad leaved  |
| ↻ | Ruined        |

### G - Location of Flag

|   |                            |
|---|----------------------------|
| ○ | West Side                  |
| ○ | South East Edge            |
| ○ | East Part                  |
| ○ | South West Corner (inside) |
| ○ | North Corner (outside)     |
| ○ | North West Tip             |
| ○ | South East End             |
| ○ | Upper Part                 |
| ○ | Lower Part                 |
| ○ | Top                        |
| ○ | Foot                       |
| ○ | North East Foot            |
| ○ | Beneath                    |
| ○ | Between                    |

### F - Dimensions

|           |                         |
|-----------|-------------------------|
| 1.5       | Height or Depth         |
| 5 x 3     | Size                    |
| 1.0 / 2.5 | Height on slope         |
| 1.5 / 2.5 | Heights of two features |
| ×         | Crossing                |
| Y         | Junction                |
| <         | Bend                    |

### H - Other Information

|   |                   |
|---|-------------------|
| + | First aid post    |
| ☐ | Refreshment point |
| 人 | Manned control    |

--- 200 m --->△ Distance to Start Triangle from point of timed start

○--- 70 m ---> Follow Taped Route away from control

○--- 90 m ---> Follow Taped Route between controls

○--- 90 m ---> Mandatory crossing point or points

○--- 90 m ---> Mandatory passage through out of bounds area

○--- 20 m ---> Follow Taped Route to Map Exchange

○--- 80 m ---> Follow Taped Route to Finish

○--- 50 m ---> Navigate to Finish Funnel, then follow tapes

○--- 90 m ---> Navigate to Finish, no tapes

These are the symbols used to describe controls, explaining what you are looking for

Beginners courses also have a description in words

### Land forms

|   |                         |
|---|-------------------------|
| — | Terrace                 |
| — | Spur                    |
| — | Re-entrant              |
| — | Earth bank              |
| — | Quarry                  |
| — | Earth wall              |
| — | Erosion gully           |
| — | Small erosion gully     |
| ○ | Hill                    |
| ● | Knoll                   |
| ○ | Saddle                  |
| ○ | Depression              |
| ○ | Small depression        |
| ○ | Pit                     |
| ○ | Broken ground           |
| ○ | Ant hill, Termite mound |

### Rock and boulders

|   |                 |
|---|-----------------|
| — | Cliff, Crag     |
| — | Rock pillar     |
| — | Cave            |
| — | Boulder         |
| — | Boulder field   |
| — | Boulder cluster |
| — | Stony ground    |
| — | Bare rock       |
| — | Narrow passage  |
| — | Trench          |

### Water and marsh

|   |                            |
|---|----------------------------|
| — | Lake                       |
| ● | Pond                       |
| — | Waterhole                  |
| — | River, Stream, Watercourse |
| — | Minor water channel, Ditch |
| — | Narrow marsh               |
| — | Marsh                      |
| — | Firm ground in marsh       |
| — | Well                       |
| — | Spring                     |
| — | Water tank, Water trough   |

### Vegetation

|   |                        |
|---|------------------------|
| — | Open land              |
| — | Semi-open land         |
| — | Forest corner          |
| — | Clearing               |
| — | Thicket                |
| — | Linear thicket         |
| — | Vegetation boundary    |
| — | Copse                  |
| — | Prominent tree         |
| — | Root stock, Tree stump |

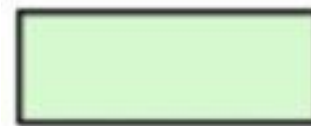
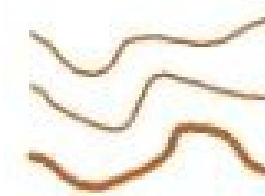
Maprunner  
www.maprunner.co.uk  
© Simon Errington 2017. simon@maprunner.co.uk

### Man-made features

|   |                           |
|---|---------------------------|
| — | Road                      |
| — | Track, Path               |
| — | Ride                      |
| — | Bridge                    |
| — | Power line                |
| — | Power line pylon          |
| — | Tunnel                    |
| — | Wall                      |
| — | Fence                     |
| — | Crossing point            |
| — | Building                  |
| — | Paved area                |
| — | Ruin                      |
| — | Pipeline, Bobsleigh track |
| — | Tower, Pylon              |
| — | Shooting platform         |
| — | Boundary stone, Cairn     |
| — | Fodder rack               |
| — | Platform                  |
| — | Monument, Statue          |
| — | Canopy                    |
| — | Stairway                  |
| — | Out of bounds area        |

### Special features

|   |              |
|---|--------------|
| × | Special item |
| ○ | Special item |





Think of navigating in simple steps

## Plan Picture Direction

Navigating in simple steps

### Map

Read the map

### Plan

Plan a route to get to the next control

### Picture

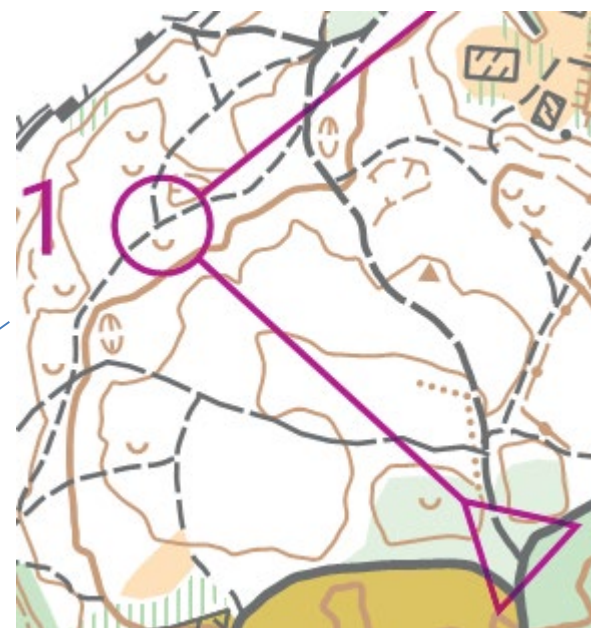
Try to picture what you will be looking for on the route

### Direction

Use the map and compass to navigate your route:  
Thumb on where you are  
Map always oriented to north

### Seeing

Match what you see around you to the map as you go



Follow large track  
Second left onto path after 300m  
Control at path junction after 100m

An off-road vehicle track  
then a small path  
In woodland all the way  
Heading downhill  
Control on junction of two similar paths

Map lined up to north  
Start in north direction  
Track has some curves in it  
Cross 3 contours downhill  
Watch distance – 300m to turning  
Tight turning back to South West  
Keep map lined up to north when turning  
150m then control  
Control code is PZ



When people first try orienteering they often worry about - what happens if I get lost?  
Beginner's courses are planned so you can succeed, don't worry, enjoy the challenge

## What if I get lost?

Don't worry getting a bit lost is normal. If you can no longer match the map to the terrain around you **STOP** and work out where you are. Here are some basic steps that will help you get back on track.

- 1 **STOP** – don't keep going and make it worse!
- 2 **Review** where you have been and try to trace it on the map
- 3 **Match** large features around you to the map

Then if necessary:

- 4 **Retrace** your steps and try again

Above all, don't panic, because you will usually be no more than 200 metres from your last known point which you can always go back to

On beginner's courses it is OK to ask for help, but try to work out where you are yourself first, it is much more satisfying


When you progress beyond beginner's courses you should not ask for help  
Working out where you are is the challenge of orienteering!



This is a summary of the core skills you need to develop as a beginner with links back to the downloads and videos that will help you

# Better Orienteering Skills Matrix - Beginner

Note: This skills matrix only indicates key skills at different stages of orienteering development more skills concepts are covered on Better Orienteering

| Orienteering skill level | Core navigation skills   | Goals   | Free downloads on Better Orienteering   | Learning Videos<br>Link to videos in Beginner section  |
|--------------------------|--|---|---|--|
| <a href="#">Beginner</a> | <div>Understand map symbols</div> <div>Orientate map to north with compass</div> <div>Plan route, use line features</div> <div>Thumb on map as you move</div> <div>Understand scale</div> <div>Understand and use control descriptions</div> | <div><b>Get round an orienteering course and enjoy it!</b></div> <div><i>Know how to relate the map to the terrain</i></div> <div><i>Build confidence in navigating</i></div> | <div><a href="#">Beginners Tips</a></div> <div></div> | <div><a href="#">Learning Videos Playlist</a></div> <div><a href="#">Newcomer's Guide</a></div> <div><a href="#">The map</a></div> <div><a href="#">Planning your route</a></div> <div><a href="#">Finding your way</a></div> <div><a href="#">What is an orienteering map?</a></div> <div><a href="#">The 10 Elements of Orienteering</a></div> <div><a href="#">Orienteering – more than running</a></div> |

Duncan Bayliss, 2020

Remember - you don't need to understand all this to try orienteering and enjoy a fun challenge!

The skills will come clearer as you try a few orienteering races or permanent courses



# Better Orienteering

## Basic Navigation Routine

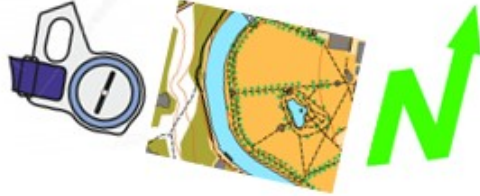


Try this video collection of basic skills

This video demonstrates the basic skills you will need to use consistently to orienteer successfully



## Better Orienteering Basic Navigation Routine



scale 1:10000, contours 10m  
500m

Keep the map lined  
up to north  
(orientate it)

Know the scale,  
tune in to it



Keep thumb on map  
where you are



Take each leg in sections

**Exiting control**



Amber – *go steady  
careful on direction*

**Route to Attack  
Point**



Green – *move quicker to  
Attack point*

**Finding control**



Red – *go carefully in to  
control*



Go steady to No. 1  
and get into the flow

Once you have  
completed a few  
orienteering courses  
you need to build a  
rock solid basic  
navigation routine

You need to reliably do  
the basics right for  
every leg of every  
course



## Better Orienteering



Its about navigation  
more than running



Stay in contact with the  
map all the time  
Look at it often



If unsure where you are:

**STOP**

**Review** where you have been

**Match** large features to map

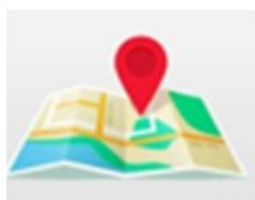
**Consider possible errors**

Then if you need to

**Move out** to a firm feature,  
and come back in



Walk when the map  
reading requires it



Its not the same as using a  
road atlas or smartphone -  
You **orientate** the map and  
**zoom** in and out of detail

Page 2  
Basic Navigation Routine

If you don't get this right  
it will hold back for  
years



## Know your control descriptions

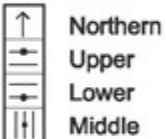
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| A | B   | C | D | E | F      | G | H |
|---|-----|---|---|---|--------|---|---|
| 1 | 123 | ↓ | ○ | ⊗ | 15 x 5 | ○ | ⊗ |

- A Control number  
 B Control code  
 C Which of any similar feature  
 D Control feature  
 E Appearance  
 F Dimensions/combinations/bend  
 G Location of control flag  
 H Other information

#### C - Which Feature



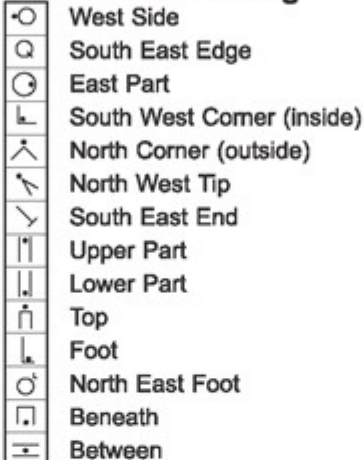
#### D - Control Feature

See below.

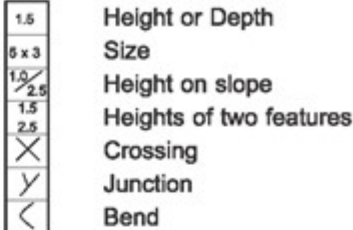
### E - Appearance



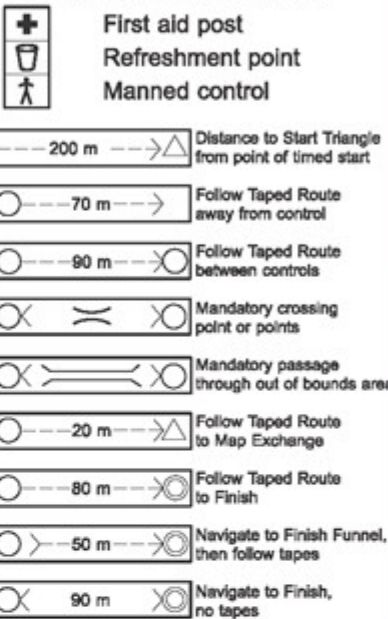
### G - Location of Flag



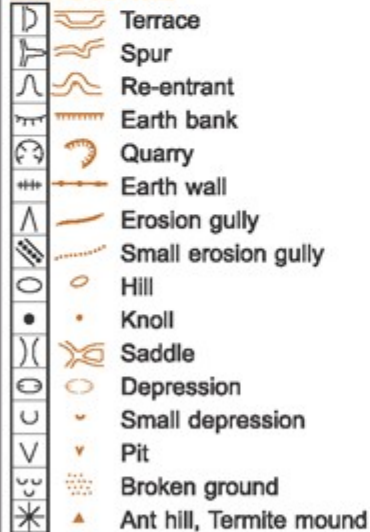
### F - Dimensions



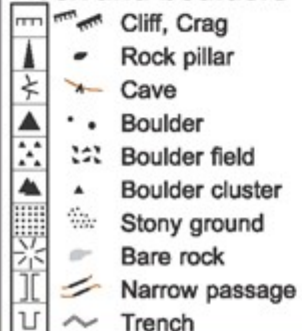
### H - Other Information



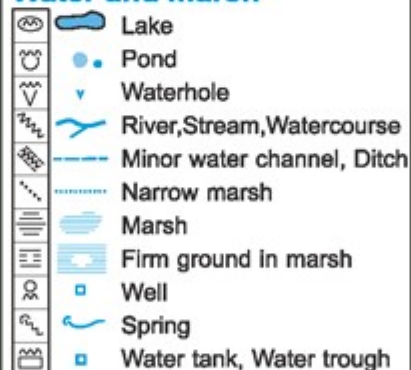
### Land forms



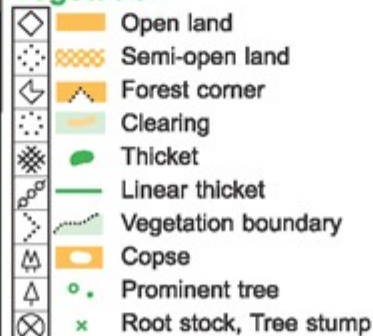
### Rock and boulders



### Water and marsh

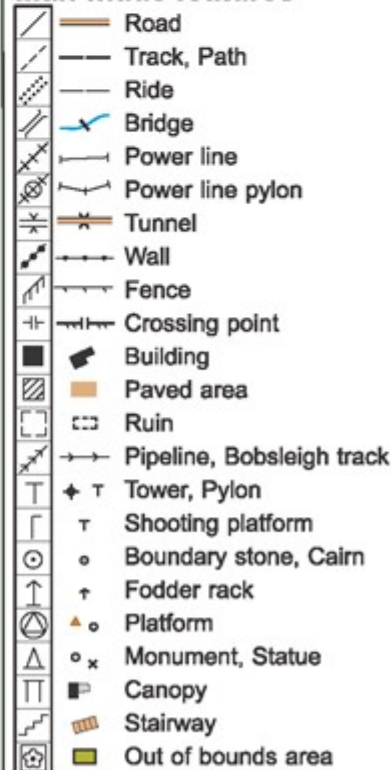


### Vegetation

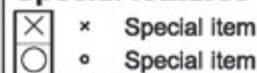


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### Man-made features



### Special features



Orienteering control descriptions are a world-wide pictorial language to describe what you are looking for

It is important when approaching a control that you know:

What is the feature?

What it will look like?

What size is it?

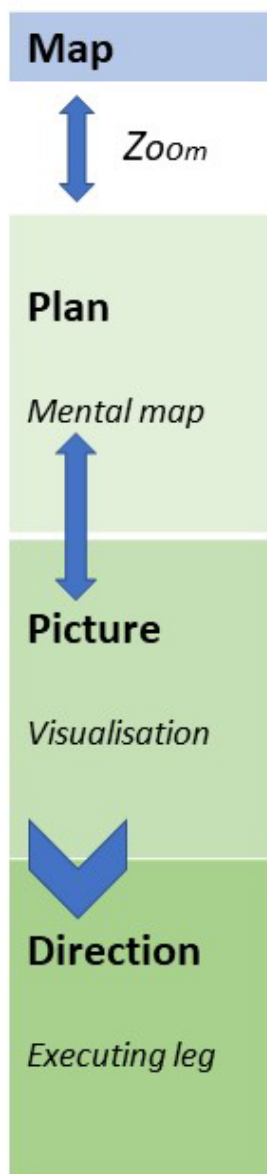
From which direction you should be able to see the flag?

If you don't know what you are looking for you have to rely on spotting the orange and white flag

You can practice learning the descriptions with some [Games](#)

There are some on the Better Orienteering website

## Plan Picture Direction



This model is used across skill levels on Better Orienteering

# Plan Picture Direction

A model to use when orienteering

Plan, Picture Direction draws on a model by Kris Jones integrated with other elements of navigation on Better Orienteering, Duncan Bayliss, 2019

**Plan Picture Direction** gives you a simple method to apply your skills to orienteering races

**Plan** – read the map to work out a route and Attack point

**Picture** – visualise what you will encounter on route

**Direction** – follow a routine with map and compass to navigate the leg







**Seeing** – what you see in the terrain will need to be matched to your Picture of what you expect to see. You then keep updating the details of your Plan and Picture

As your navigation improves you can link this model to more concepts





## O-Ringen School

- 1  **#8 O-Ringen school - staying focused on the map**  
oringenofficial 7:40
- 2  **#12 What are the different symbols on the map?**  
oringenofficial 10:09
- 3  **#15 Sort away details on the map - Orienteer better**  
oringenofficial 8:41
- 4  **#20 O-Ringen school - contours**  
oringenofficial 8:37
- 5  **#28 What you need to know on route choices**  
oringenofficial 13:24
- 6  **#Testing the route choices from the previous episode**  
oringenofficial 31:49

This series of videos O-Ringskolan (e.g. O-Ringen School) includes demonstration of skills that goes from Basic level towards some Intermediate level skills

These episodes are helpful at the Basic Navigation Routine Skills level

Swedish with English sub-titles  
Don't be put off if you don't speak Swedish, you are seeing skills demonstrated



# Better Orienteering Playlist on You Tube

There are some excellent videos by orienteers for orienteers, showing skills in practice. There are also a lot of videos about navigation that are not so helpful for orienteering.

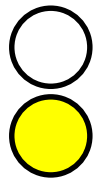
**Better Orienteering Playlist draws together the most helpful orienteering learning videos,** starting with a short overview to help you find the right videos for your level (you can skip this if you wish)

The videos are then ordered from the beginner through to Advanced videos



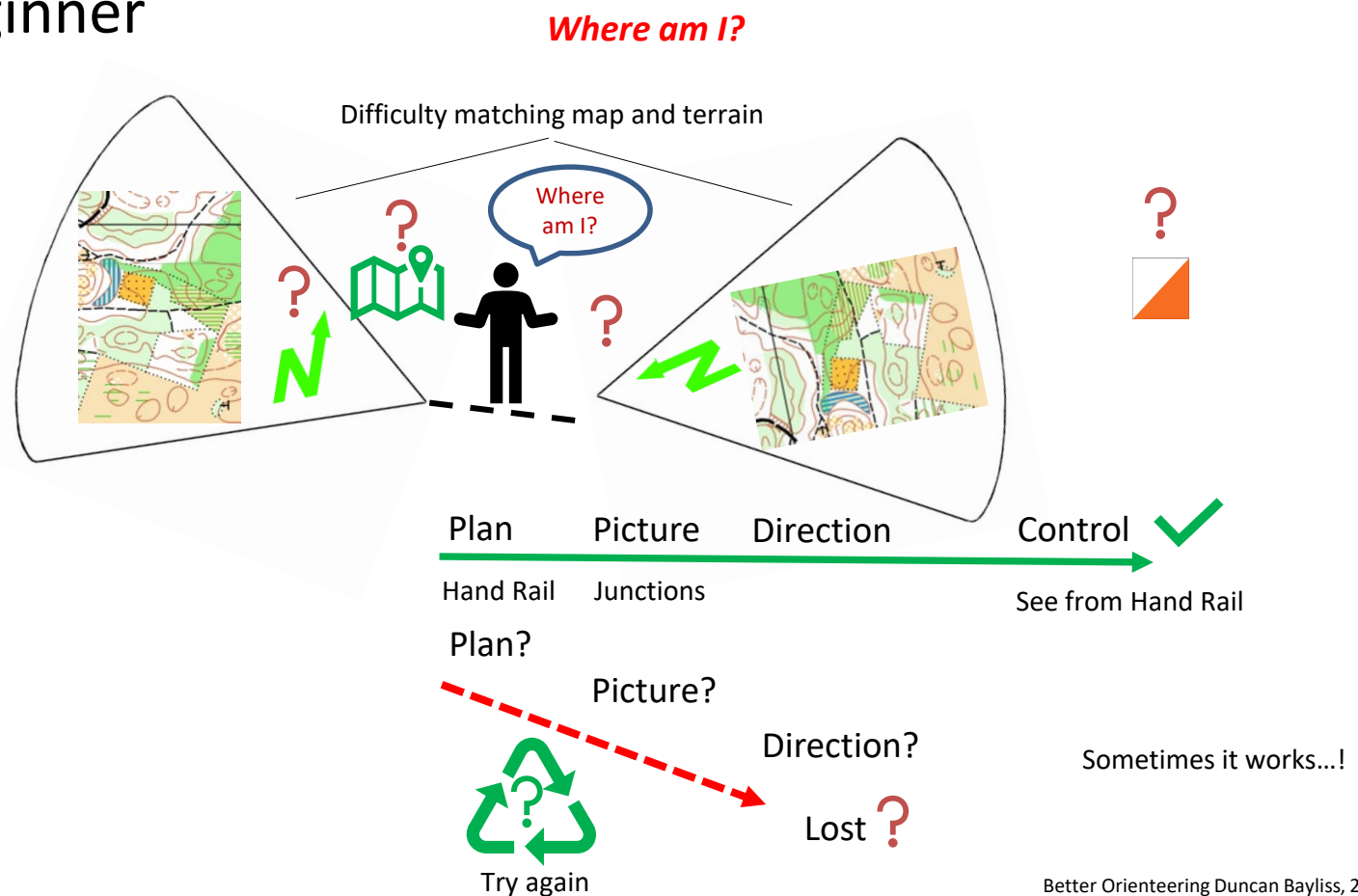


When you first start orienteering it is natural to focus on - *Where am I?*



Yellow and  
White courses

## Beginner



Better Orienteering Duncan Bayliss, 2020

Your Plan and Picture of where you are going will be very basic.

If you need to relocate you will focus on thinking back over where you have been and matching large features to the map. If necessary you retrace your steps to a known point

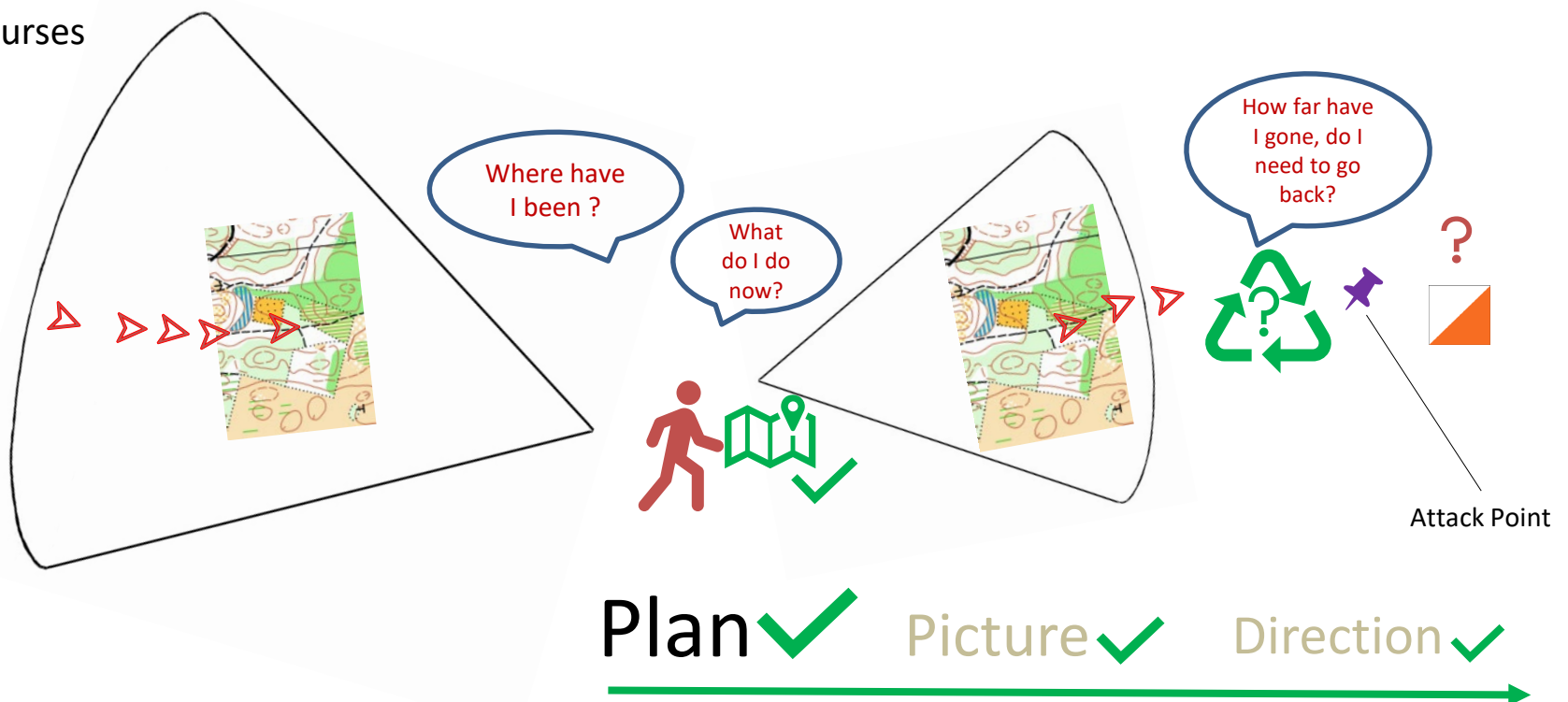
Once you have the basics of navigation working reliably you should be clear on where you have been and where you are trying to go next

Someone at a basic level is able to use the map and compass reliably to plan a route and maintain direction, but they will still be developing only a very basic picture in their mind of what is coming next. Navigating like this can be reliable but tends to be slow



## Basic navigation

Orange courses



Plan ✓

Picture ✓

Direction ✓

A basic plan -  
Attack Point  
Route

Some Picture

Accurate direction but slow

Better Orienteering Duncan Bayliss, 2020

The step up to an Intermediate level is very much about improving your Plan and Picture so that you can be more forward focused and move through the terrain with confidence.



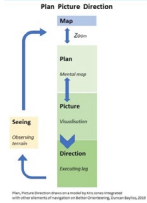
Your navigation must move from *Where am I?* and *Where have I been?* to *Where am I going?*



You need to be confident with these skills to navigate reliably and consistently

# Better Orienteering Skills Matrix – Basic Navigation

Note: This skills matrix only indicates key skills at different stages of orienteering development more skills concepts are covered on Better Orienteering

| Orienteering skill level                 | Core navigation skills   | Goals   | Free downloads on Better Orienteering  | Learning Videos<br>Link to videos in Basic Navigation section  |
|--|--|---|--|--|
| <a href="#">Basic Navigation Routine</a> | <p>Learn a <b>Basic Navigation Routine</b> applied to every leg</p> <p>Use Plan, Picture, Direction</p> <p>Know control descriptions</p> <p>Understand contours</p> <p>Route planning- break legs into sections</p> <p>Simplify, Route choice, Accurate Direction, Attack point</p> <p>Using thumb compass- Rough compass<br/>Accurate compass</p> <p>Relocation</p> | <p><b><i>Learn a routine for using the map and compass as a foundation for all orienteering navigation</i></b></p> <p><i>Understand all the basic elements of orienteering</i></p> <p><i>Understand what skills you need to develop to progress – looking ahead to Intermediate level</i></p> | <p><a href="#">Basic Navigation Routine Tips</a></p>  <p><a href="#">Better Orienteering Summary</a></p>  <p><a href="#">Plan, Picture, Direction</a></p>  | <p><a href="#">Learning Videos Playlist</a></p> <p><a href="#">The 10 Elements of Orienteering</a></p> <p><a href="#">How to use your compass on a yellow course</a></p> <p><a href="#">Setting the map</a></p> <p><a href="#">Using the compass</a></p> <p><a href="#">Map contact</a></p> <p><a href="#">O-Ringen School</a></p> <p>Duncan Bayliss, 2020</p> |

# What to look at next

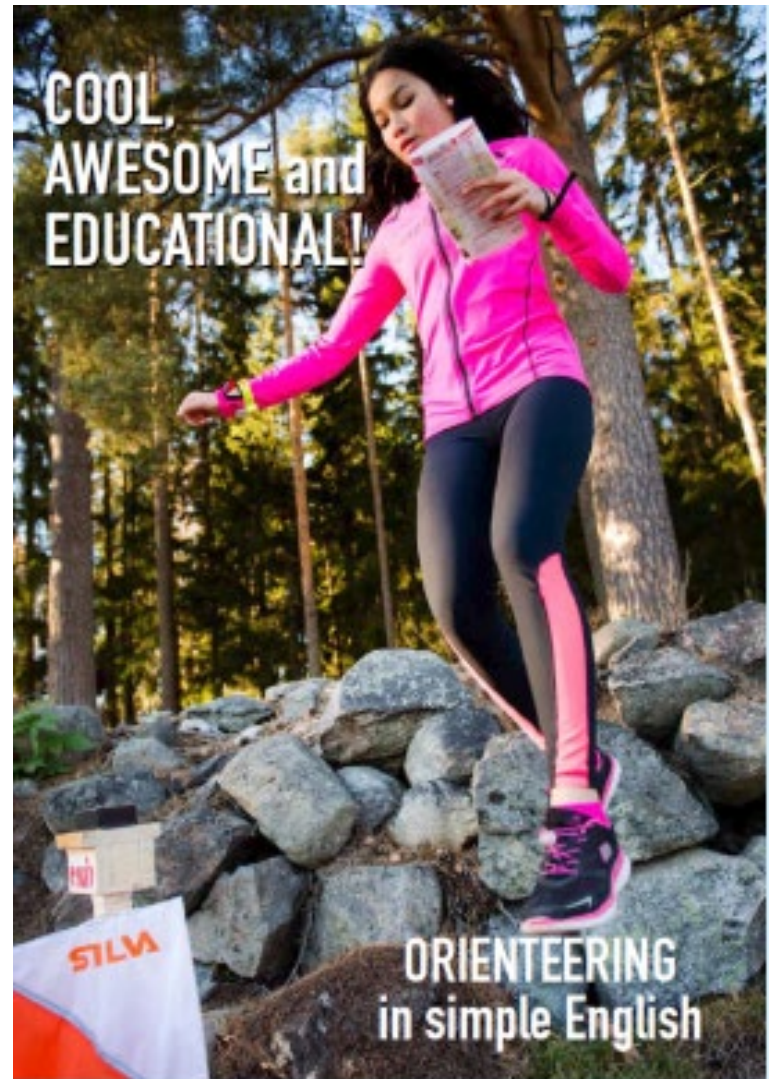
Here are a couple of very helpful short books to buy or view for free on Issuu



Göran Anderson (2020)  
['Cool, Awesome, Educational  
Orienteering at school ages 6-15'](#)

See Göran's website for details of how to order copies of either book <http://www.byorienteering.se/>

Both books by Göran Andersson are free to view on [Issuu](#).



Göran Andersson (2017)  
['Cool, Awesome, Educational –  
Orienteering in Simple English'](#)





# Better Orienteering



How well am I  
Orienteering?



A self diagnostic test



Photo: Steve Rush

This summary should be used together with the [Betterorienteering.org](http://Betterorienteering.org) website



## How well am I orienteering? 3 self-diagnostic questions

Try to honestly measure yourself against these 3 statements of orienteering ability

1. *I have a solid basic navigation routine that helps me avoid regularly repeating errors such as:*

- *exiting the control in the wrong direction*
- *failing to identify and navigate in from an Attack Point*
- *failing to reliably estimate distance*

NO

Review your basic routines and practice applying them reliably.  
Be aware of other techniques but focus on delivering the basics right every time  
FOCUS ON BASIC TECHNIQUES

MOSTLY

Reinforce your basic routines but explore which other techniques you could use more often  
EXPLORE INTERMEDIATE TECHNIQUES

2. *I am running within my thinking ability, not forcing errors with oxygen debt or rushing  
My route choices are good and I reliably execute them  
I am able to deliver good control flow most of the time  
I am able to confidently move through terrain without following linear features*

NO

Be aware of Advanced Techniques but  
FOCUS ON IMPROVING INTERMEDIATE TECHNIQUES

YES

Systematically identify where you are losing time  
Practice different mixes of techniques to see where your strengths and weaknesses lie  
REINFORCE ADVANCED TECHNIQUES

3. *I understand all the Advanced Techniques. I can use them as needed and can join them up consistently and reliably*

NO

Try exploring HOW TO JOIN IT ALL UP. Use the suggestions on visualisation and psychology to help you process the Advanced Techniques in race conditions

YES

Congratulations you are orienteering beyond the remit of this guide!  
Please do contribute suggestions on further content to include in this guide to help others follow your success.

You can use these diagnostic questions at any time

Try to gauge where you are on your orienteering journey

and identify what you need to focus on next

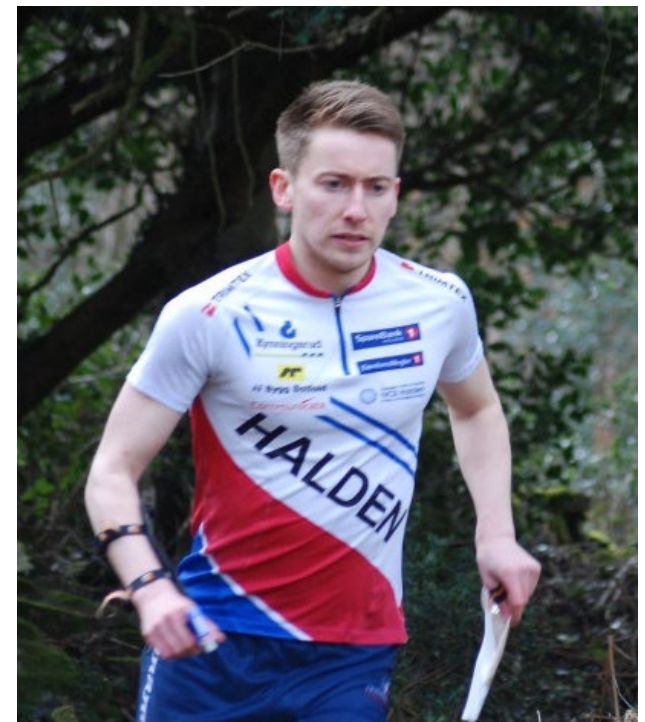


Photo: Steve Rush



# Better Orienteering

## Intermediate A Skills Tool Kit



These 9 videos cover Intermediate to Advanced skills

Use this summary together with the [Betterorienteering.org](http://Betterorienteering.org) website



## Better Orienteering Navigation model – pictorial version





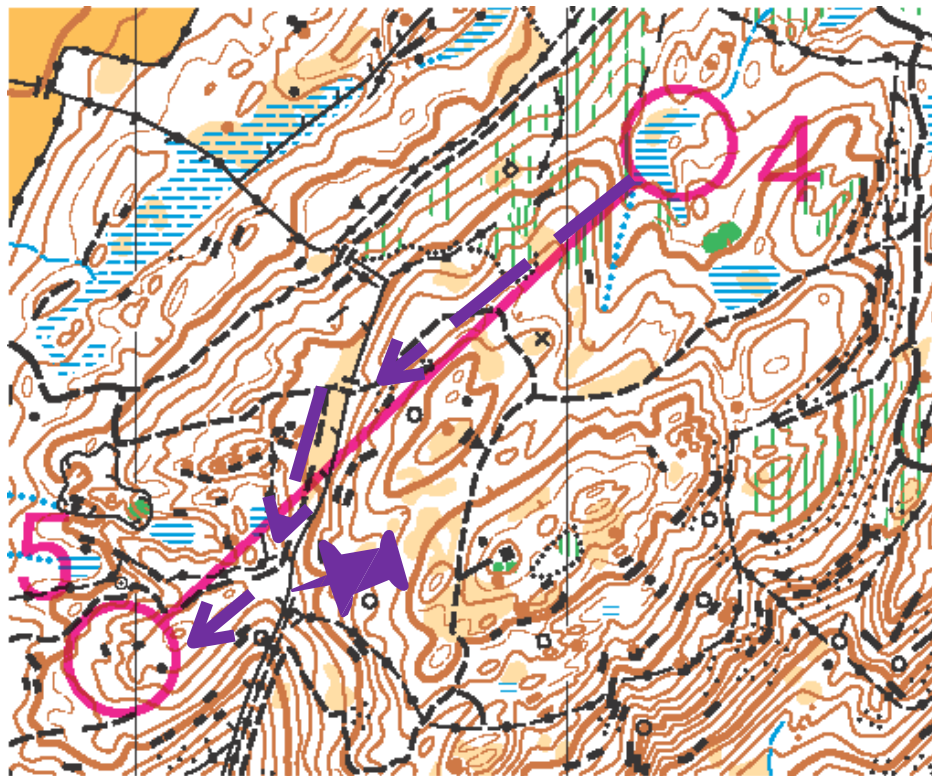
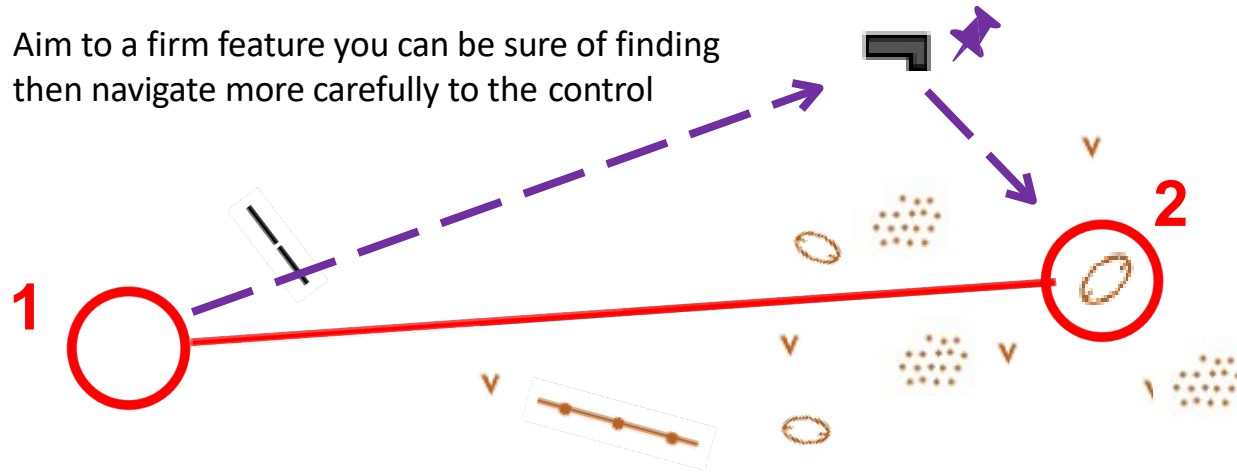
# Skills Tool Kit


Basic Intermediate Advanced

Once you have a good **Basic Navigation Routine** (see separate summary), you can use a **Tool Kit of skills** and apply them flexibly as needed. These skills interact with each other and operate at all levels of orienteering from Basic to Advanced with varying levels of complexity.

## Attack Point

Aim to a firm feature you can be sure of finding then navigate more carefully to the control



Head to fence, follow to the saddle where the path turns west for firm **Attack Point** 

then head south west along spur

The **Attack Point** is confirmed by the fence, the path turning and the saddle contour shape

part of Summerhouse Knott  
copyright Warrior OC 2019  
map by  
[martinbagness@aol.com](mailto:martinbagness@aol.com)

The Skills Tool Kit illustrates a set of core concepts you can use to navigate

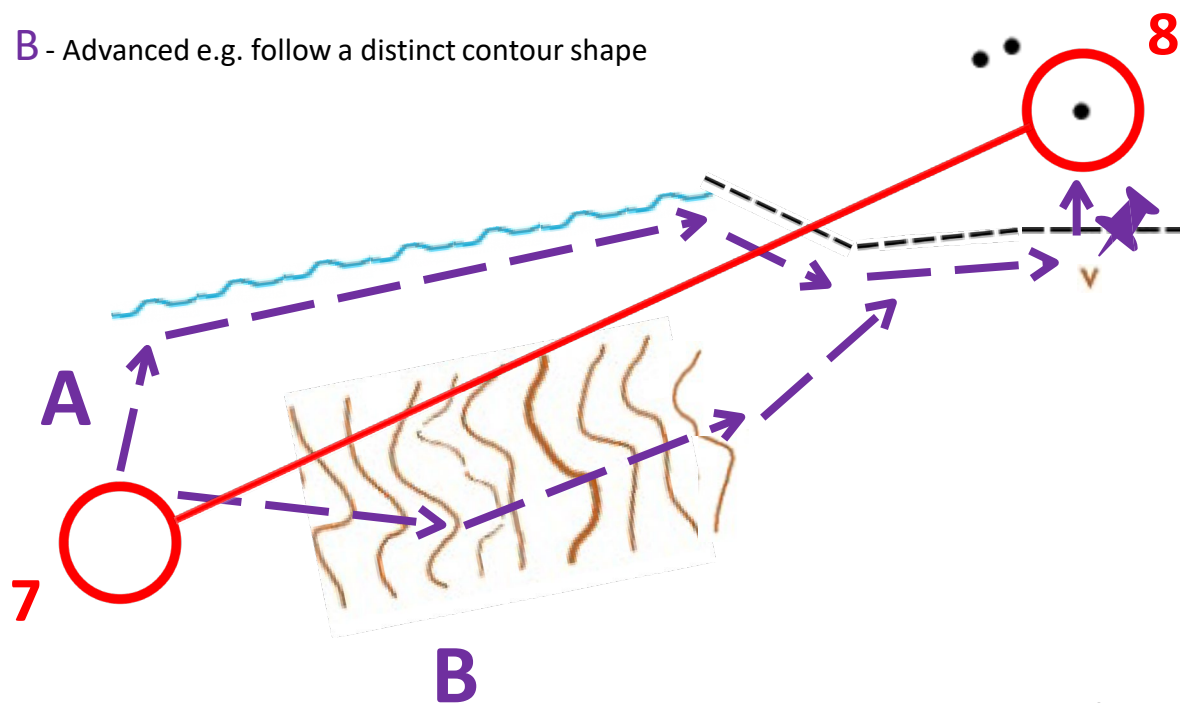
You can 'mix and match' these skills on a flexible basis

## Hand rail

Follow a linear feature to move quickly towards the next control

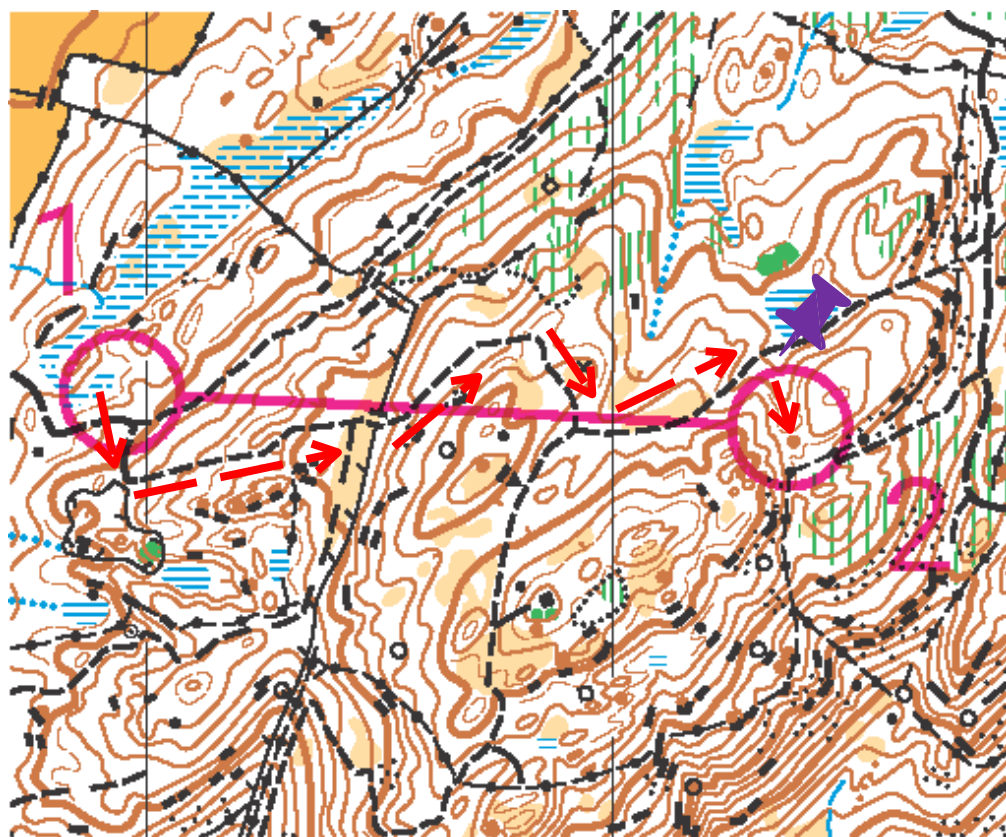
A - Basic e.g. follow a path or stream

B - Advanced e.g. follow a distinct contour shape



These skills concepts can be used at a range of levels from intermediate right up to elite level

They are skills every orienteer needs to know



### Simple Hand Rail:

Follow paths

Attack point is where re-entrant goes up to the right

Route on ground →

The easiest courses allow you join up **Hand Rails** as your route

part of Summerhouse Knott  
copyright Warrior OC 2019  
map by  
[martinbagness@aol.com](mailto:martinbagness@aol.com)

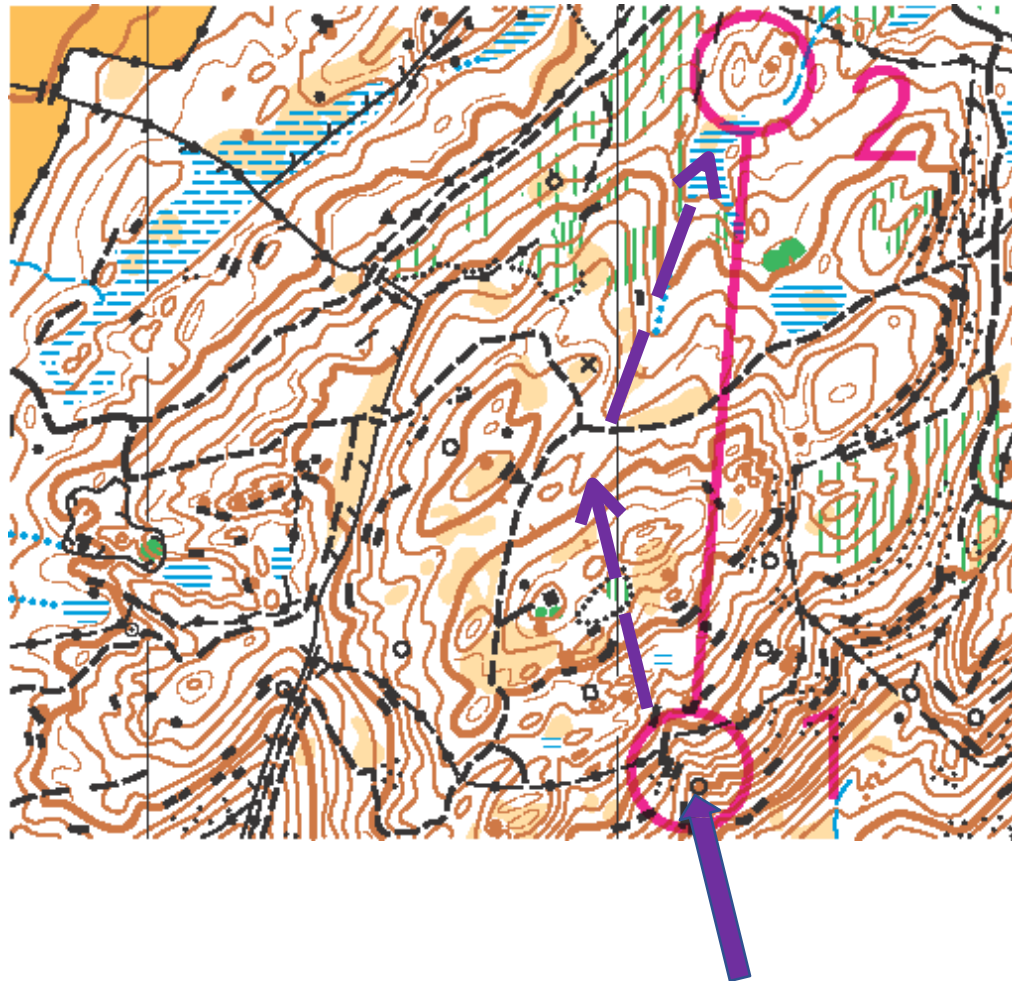


## Advanced Hand Rail

The contour features can be used as a **Hand Rail** to complete most of the leg

Head north following up small re-entrant to saddle

By staying within the re-entrant shape it can be followed up to the top of the hill  
the only detail that matters is following the re-entrant and the top of the hill



part of Summerhouse Knott  
copyright Warrior OC 2019  
map by  
[martinbagness@aol.com](mailto:martinbagness@aol.com)

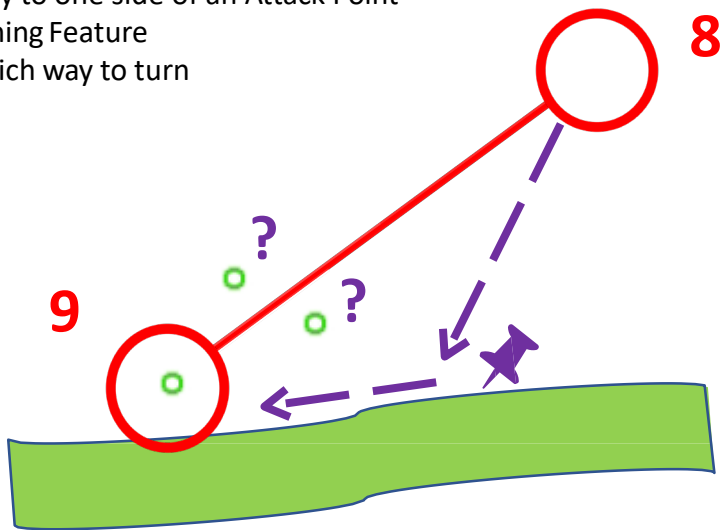
descend on Rough Bearing  
the path junction will be seen to the left,  
cross path follow re-entrant as **Hand Rail** to where it levels to marsh  
onto small hill to control


The exact line on the ground down re-entrant will not matter because the flat ground  
with a marsh splits either side of the low hill with the control on it

As your orienteering progresses you will understand the interaction between these different skills and other concepts such as simplification and visualising the shape of terrain

# Aiming off


Aim off deliberately to one side of an Attack Point or Control or Catching Feature then you know which way to turn



**Aim Off** to path, turn right. Follow stream to where the wall and stream cross the path as Attack Point. 

Then head SW parallel to the stream and under the small spur to crag.

Going straight it would be easy to be very uncertain of your location and not have a firm Attack Point  
**Aiming Off** allows certainty in finding firm features

Potential route on the ground 

part of Skelghyll Woods  
copyright Warrior OC 2018  
map by  
[martinbagness@aol.com](mailto:martinbagness@aol.com)

The Skills in this Tool Kit can be combined

This concept -

Aiming Off

can often be used in conjunction with the next one -

Catching Feature



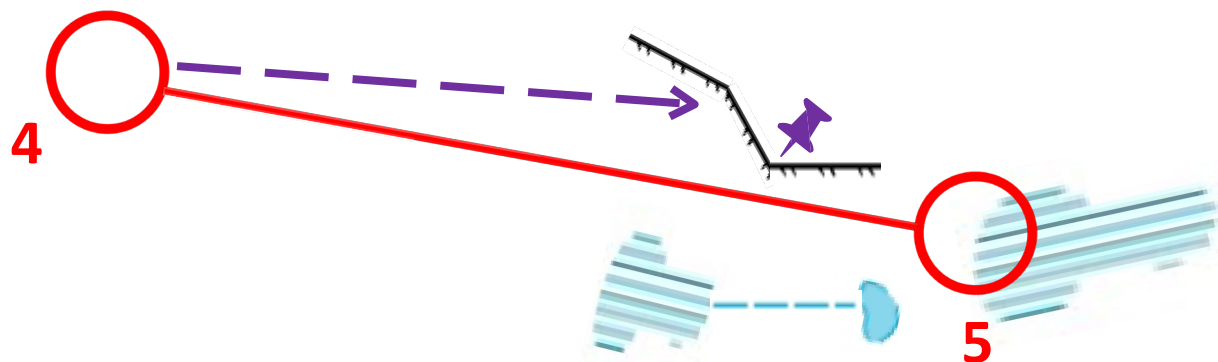
## Catching feature

Simplify the level of detail you are reading and move quickly to a firm feature

Use Rough Compass to give direction


Note features on route but relocate on the catching feature.


Then more careful navigation to the Attack Point or control



Combine Aiming Off with moving quickly to path which acts as **Catching Feature**

Aiming for a Catching Feature can help you simplify the amount of detail you need to follow as you move through the terrain towards the next control

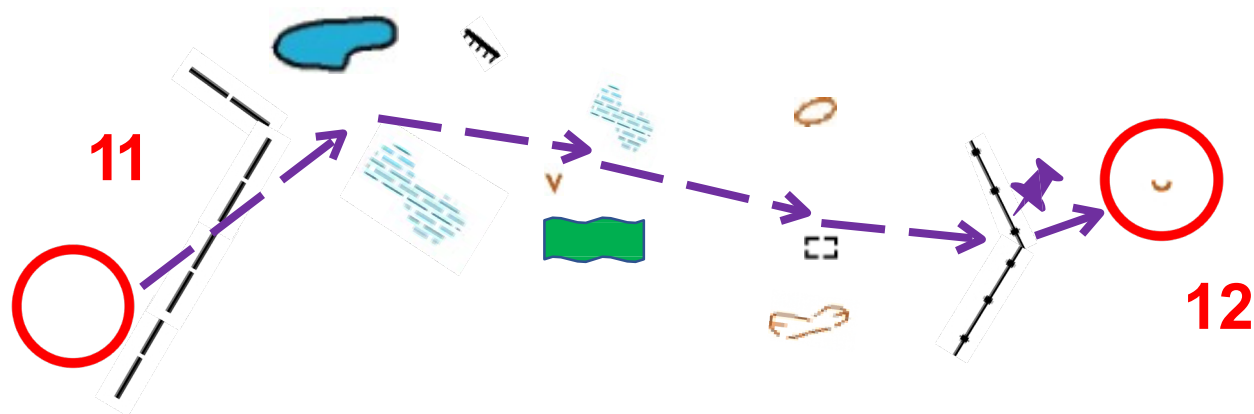
Path bend beneath crag gives Attack Point 

Your route on the ground will not be a straight line 

part of Esthwaite Intake  
Copyright Warrior OC  
Map by  
[martinbagness@aol.com](mailto:martinbagness@aol.com)

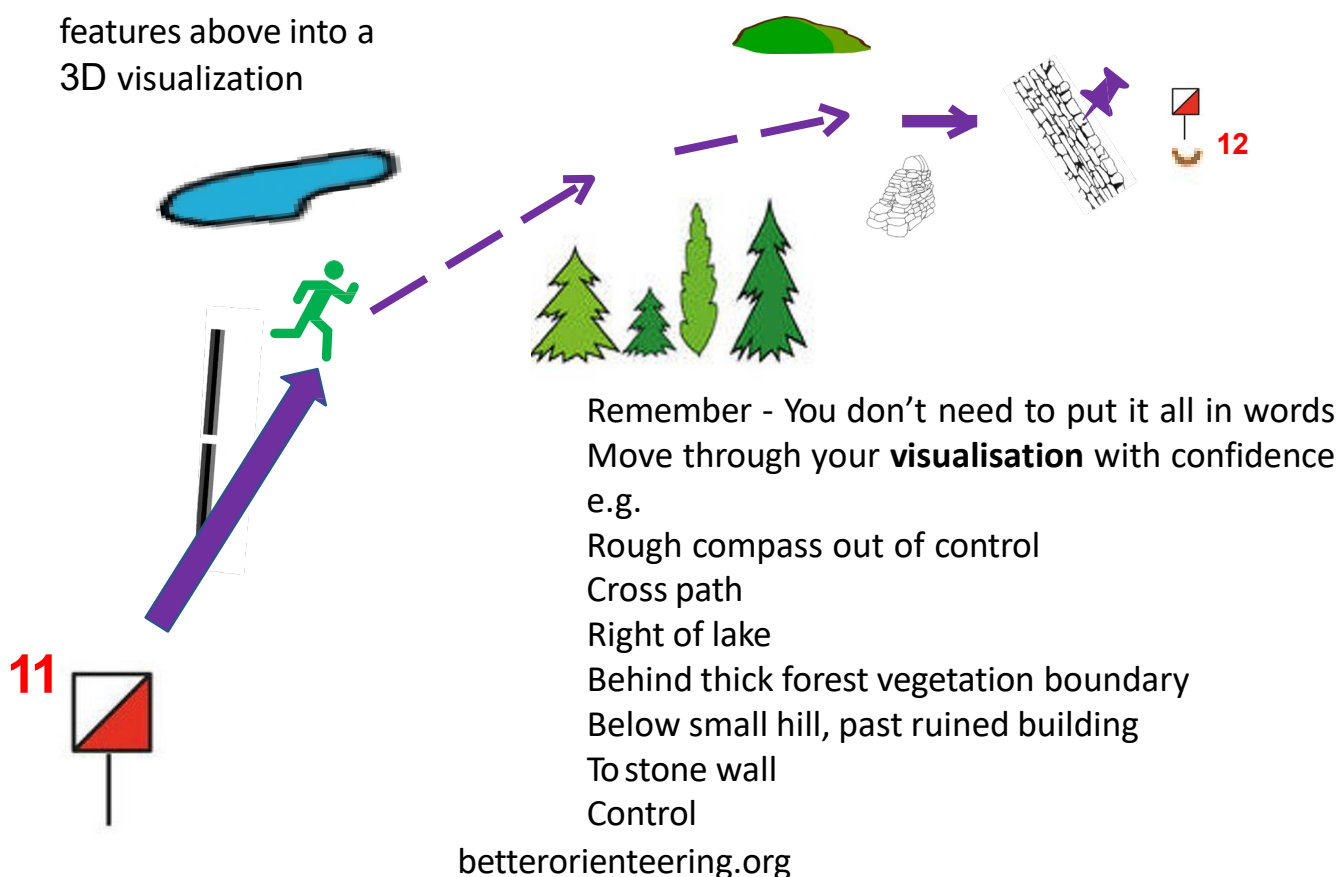
## Corridor

Instead of following a series of linear features as hand rails to get close to the control identify a **corridor** of features to move through



## Visualize notable features – go from 2D to 3D

See a terrain map in your mind  
Use **notable features** to turn the 2D features above into a 3D visualization



betterorienteering.org

Beginners will tend to follow line features such as paths or fences

As you progress you can identify a corridor of features to move through without needing a line feature to follow

With time you will get better at visualising what these feature will look from what you see on the map



## Relocation - Intermediate Relocation

Relocation happens at small and larger scales  
Unsure of where you are? Stop. **Relocate** straight  
away

## Orientate map

How big a circle of uncertainty are you in?

The sooner you **relocate**, the smaller the circle

Look for large notable features

## Still uncertain?

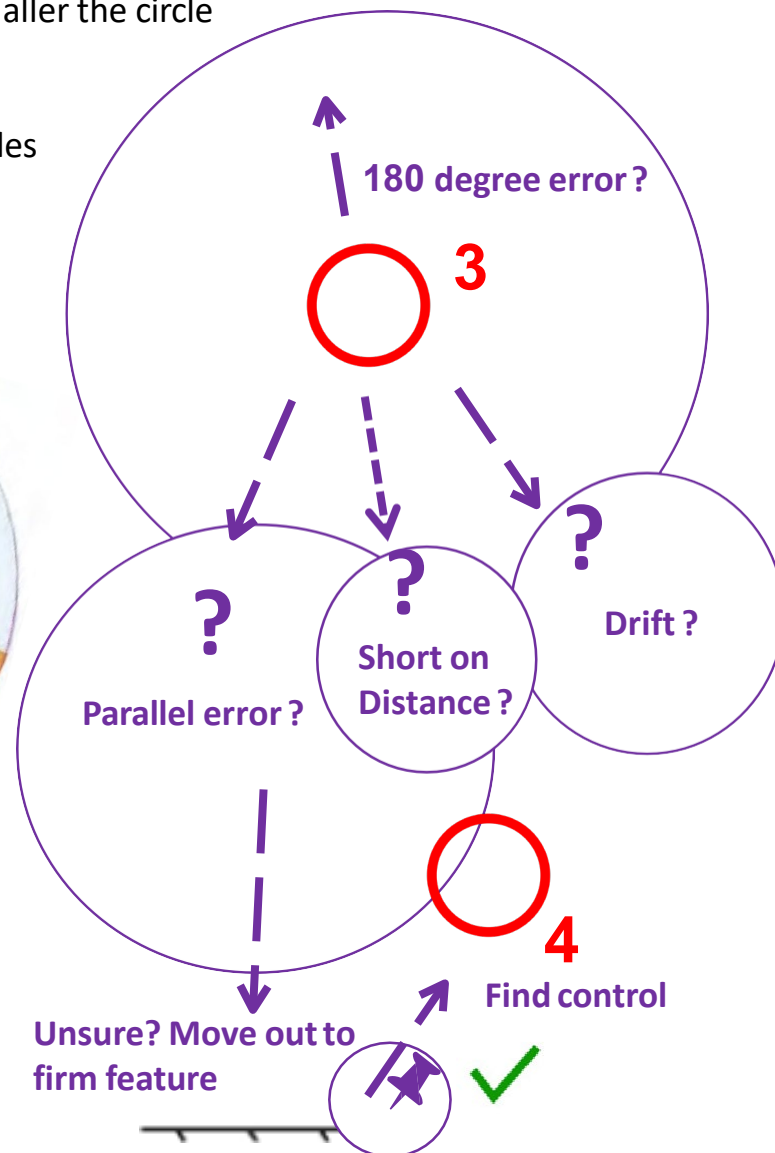
Don't just stand still or go in circles

## Move out to a firm feature

Come back in with certainty



In this example the leg is contained within field boundaries



## Mistakes will happen

Learning how to relocate quickly and effectively is essential

## Advanced Relocation - more complex courses and longer legs

If you are unsure exactly where you are, do you know where you are going?

Will you be able to pick up a more accurate location as you move on through the terrain? Are you on line to a more certain feature that will locate you?

### Near to control needs greater certainty

Or, has the map stopped matching the ground too much and you need to **relocate** now? An element of **Relocation** can even be a deliberate part of a route choice

[betterorientteering.org](http://betterorientteering.org)



There is a lot to think about and do when navigating at speed

This explanation and the info-graphic that follows summarise the many things you will be doing when navigating a leg between controls

You will need to complete a lot of orienteering races to be able to draw together all these elements

More detail on [Better Orienteering.org](http://Better Orienteering.org)

The following schematic diagram, Route choice and executing a leg, captures a lot of the thought processes in navigating a leg. It combines strategies to employ such as identifying an Attack Point and Corridor to move through, with a series of processes you need to undertake throughout the leg.

Level of certainty



The purple circles are indicative of a sense of the level of certainty you will need of your exact location at varying points through a leg – in the same way that a circle on a smartphone or GPS changes size depending on how certain it is of your location.

Route choice A

With Route Choice option A, following a Hand Rail, the purple circles are small indicating that you could know with a high degree of certainty where you are when on a path.

Route choice B

With Route Choice option B, moving through a Corridor of features you might have less certainty of your exact location but be confident of where you are going, heading for a Catching Feature and the circle placing you is larger.

Flexibility

The permutations of skills and processes for different legs are endless, so you will need to follow a Basic Navigation Routine and then flexibly draw from a Tool Kit of Skills as needed on route.

Speed



The orange, green and red runner symbols remind you to consider the appropriate speed for different parts of a leg and the navigation challenges they present and to think of the leg in sections – red= slow, orange = moderate speed, green = faster. Remember some legs are best taken slowly all the way between controls. Some other legs allow a section of much faster progress.



# Route choice and executing a leg

## Strategies

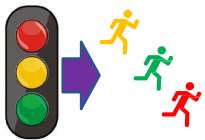
Exiting control

Plan – Attack Point  
then route

Route to Attack  
Point

Visible features

Corridor or  
hand rail ?



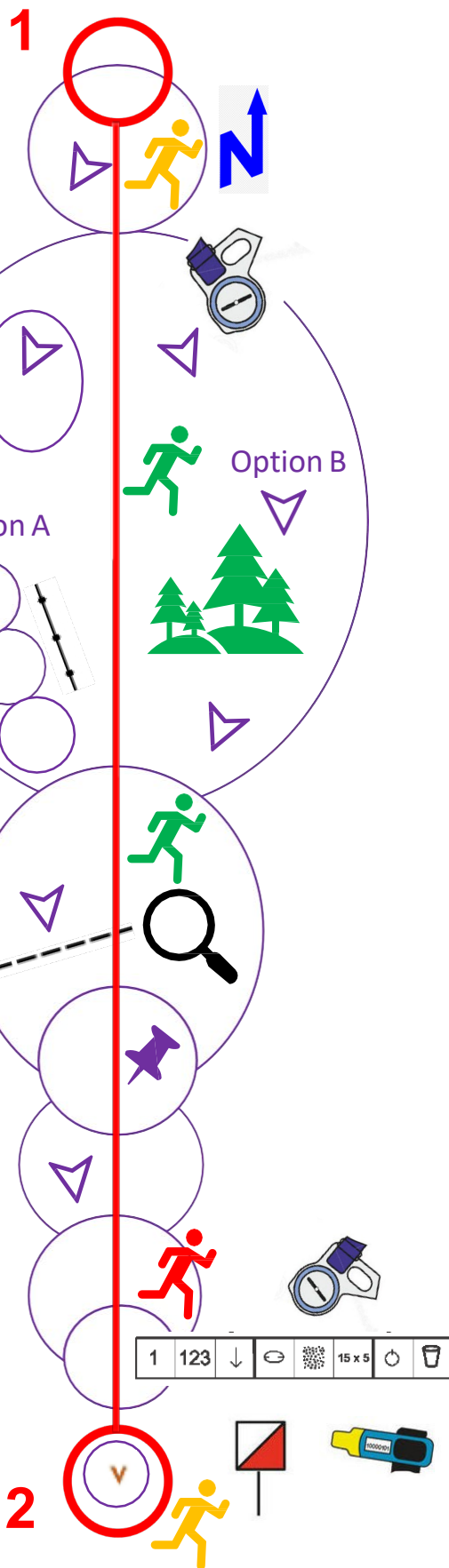
Catching feature ?

Attack Point

Finding control

Fine navigation

○ = how certain of  
exact location



betterorienteering.org

## Processes

Orientate map

Rough Compass

Read description

Simplify

Move quickly

Visualize  
notable features

Plan ahead  
plan control exit

Re-focus on detail

Slow down

Accurate compass

Check control  
description

Punch control

Control flow –  
exit smoothly

It takes a lot of practice  
to integrate all your skills

Be aware of all these  
elements

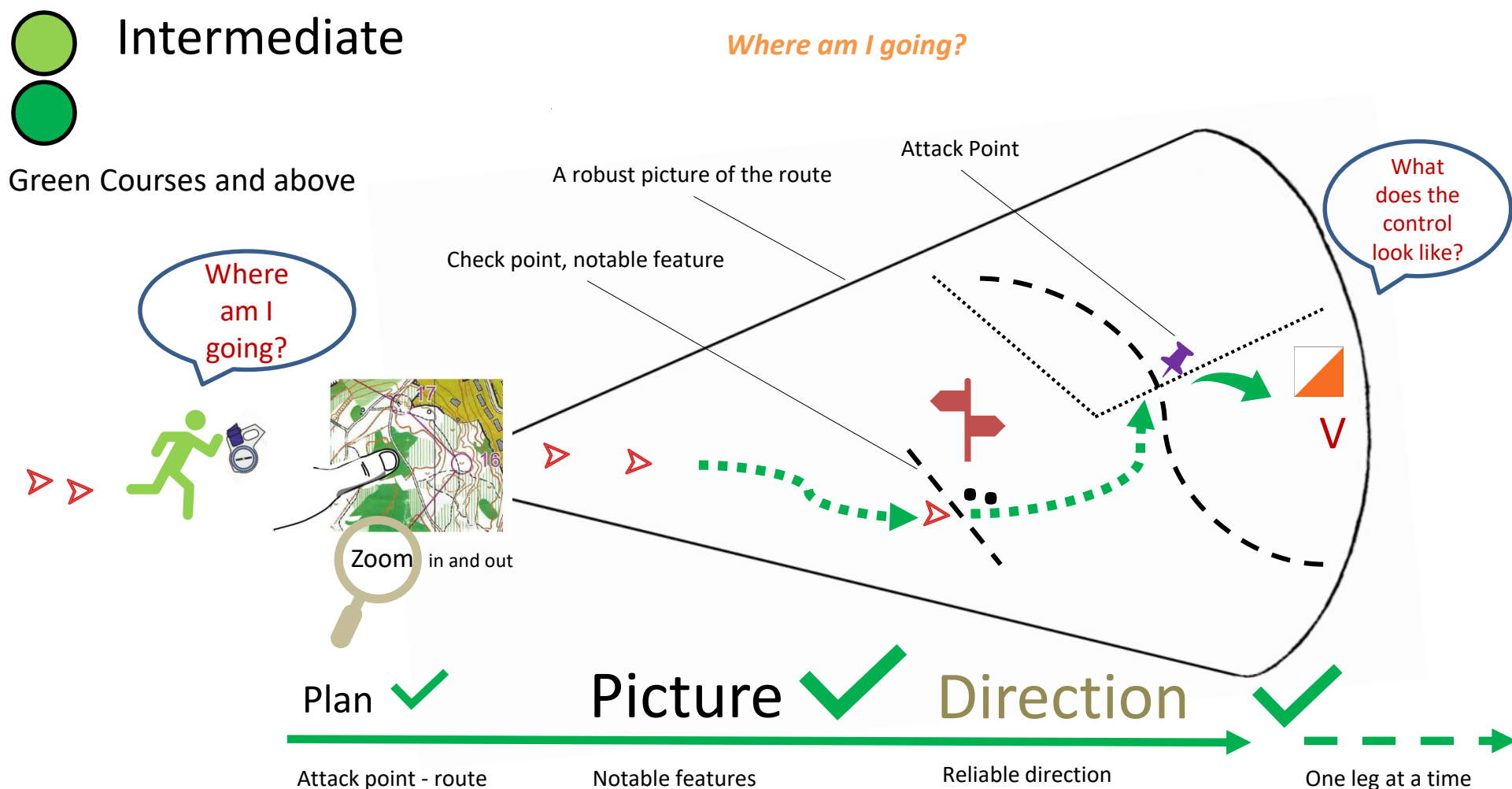
Then review legs from  
your races

How well were you able  
to join these ideas up?

At an Intermediate level you should not be struggling with *Where am I?* or *Where have I been?* but be focused on *Where am I going?*

This requires using a wide **Tool Kit of skills** in route choice, making an effective **Plan** and being able to visualise or **Picture** what will be coming up, and executing the plan reliably

Better Orienteering Duncan Bayliss, 2020










You now understand navigating as a process of selecting an effective route and picturing ahead of yourself what you will see and do






Learn to orienteer  
with Janne Troeng  
- a series of videos  
from O-Ringen TV

- 1  **#3 Learn orienteering in Lunsen with Jan Troeng**  
oringenofficial 7:54
- 2  **#7 Learn orienteering using the big details with Janne Troeng**  
oringenofficial 6:37
- 3  **#11 How to make a difficult leg "easy" in Lunsen**  
oringenofficial 8:42
- 4  **#16 Short legs in Lunsen**  
oringenofficial 9:23
- 5  **#19 A really hard leg in Lunsen**  
oringenofficial 8:32
- 6  **#23 "Albin Ridefelt would probably not approve of my route choice"**  
oringenofficial 8:54
- 7  **#27 You need to know these terrain objects in Lunsen**  
oringenofficial 22:04

These videos from  
O-Ringen TV  
cover skills from  
Intermediate to  
Advanced level

# Better Orienteering Skills Matrix - Intermediate

Note: This skills matrix only indicates key skills at different stages of orienteering development more skills concepts are covered on Better Orienteering

| Orienteering skill level     | Core skills<br>(Not an exhaustive list)  | Goals   | Free downloads on Better Orienteering   | Learning Videos<br>Link to videos in Intermediate section |
|------------------------------|--|---|---|---|
| <a href="#">Intermediate</a> | <p>Understand and apply a <b>Toolkit of skills</b>:</p> <p>Attack point<br/>Handrail<br/>Aiming off<br/>Catching feature<br/>Corridor<br/>Notable features<br/>From 2D to 3D<br/>Relocation<br/>Executing a leg in stages</p> <p>Plan, Picture, Direction in more detail:<br/>Zoom, Mental map,<br/>Visualising, Relocation strategies</p> <p>Route choice<br/>Simplification<br/>Post-race analysis</p> | <p><b><i>Understand a wide range of orienteering skills and apply them flexibly</i></b></p> <p><i>Improve ability to picture the terrain from the map</i></p> <p><i>Apply Plan, Picture, Direction to process of every leg</i></p> <p><i>Get better at handling mistakes and relocating</i></p> <p><b><i>Understand where it went wrong and how to get it right next time</i></b></p> | <p><a href="#">Skills Tool Kit</a></p>  <p><a href="#">Learning Videos Playlist</a></p> <p><a href="#">Compass bearing and Attack point on an orange course</a></p> <p><a href="#">Simplification</a></p> <p><a href="#">Sort away details, orienteer better</a></p> <p><a href="#">Route choice</a></p> <p><a href="#">Large contour features</a></p> <p><a href="#">Testing route choices</a></p> <p><a href="#">Aiming off</a></p> <p><a href="#">How to make a difficult leg easy</a></p> |   |

Duncan Bayliss, 2020

At an Intermediate level you understand a wide range of skills and can mix and match them to apply them to any leg



# Better Orienteering

## Advanced Strategies

### How to join it all up

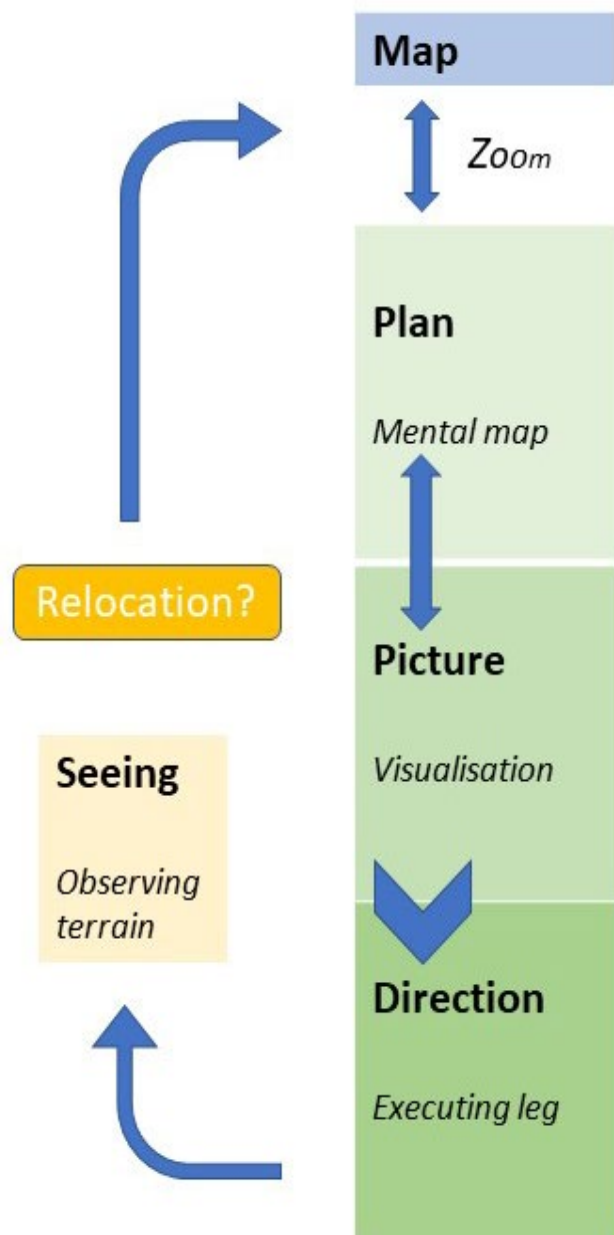
And

## Beyond Advanced

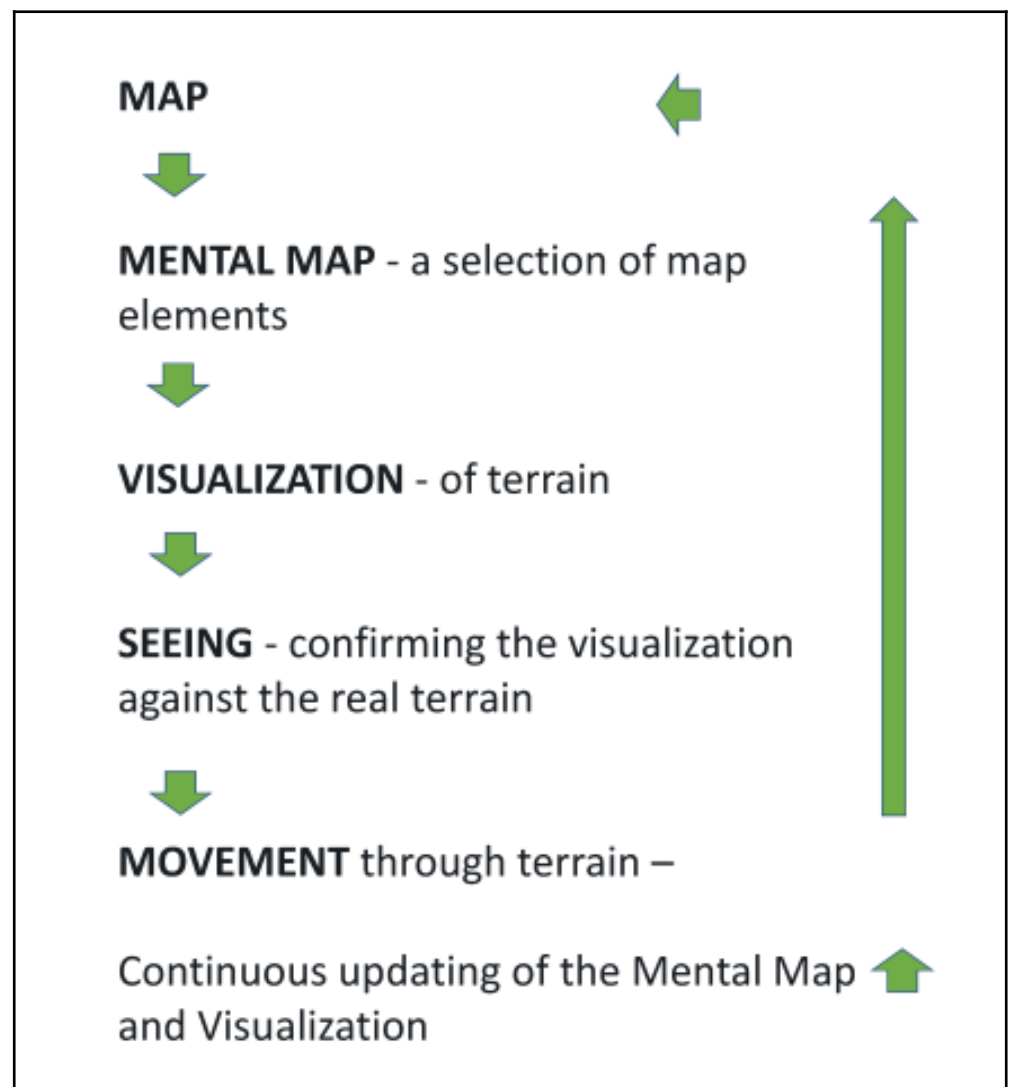


Be inspired by this video

This summary should be used together with the [Betterorienteering.org](http://Betterorienteering.org) website



## Improve your mental maps and visualisation



## Plan Picture Direction

Plan Picture Direction can be considered in more detail:

Identify which features on the map you need to use to navigate the leg

Build an effective simplified mental map and route

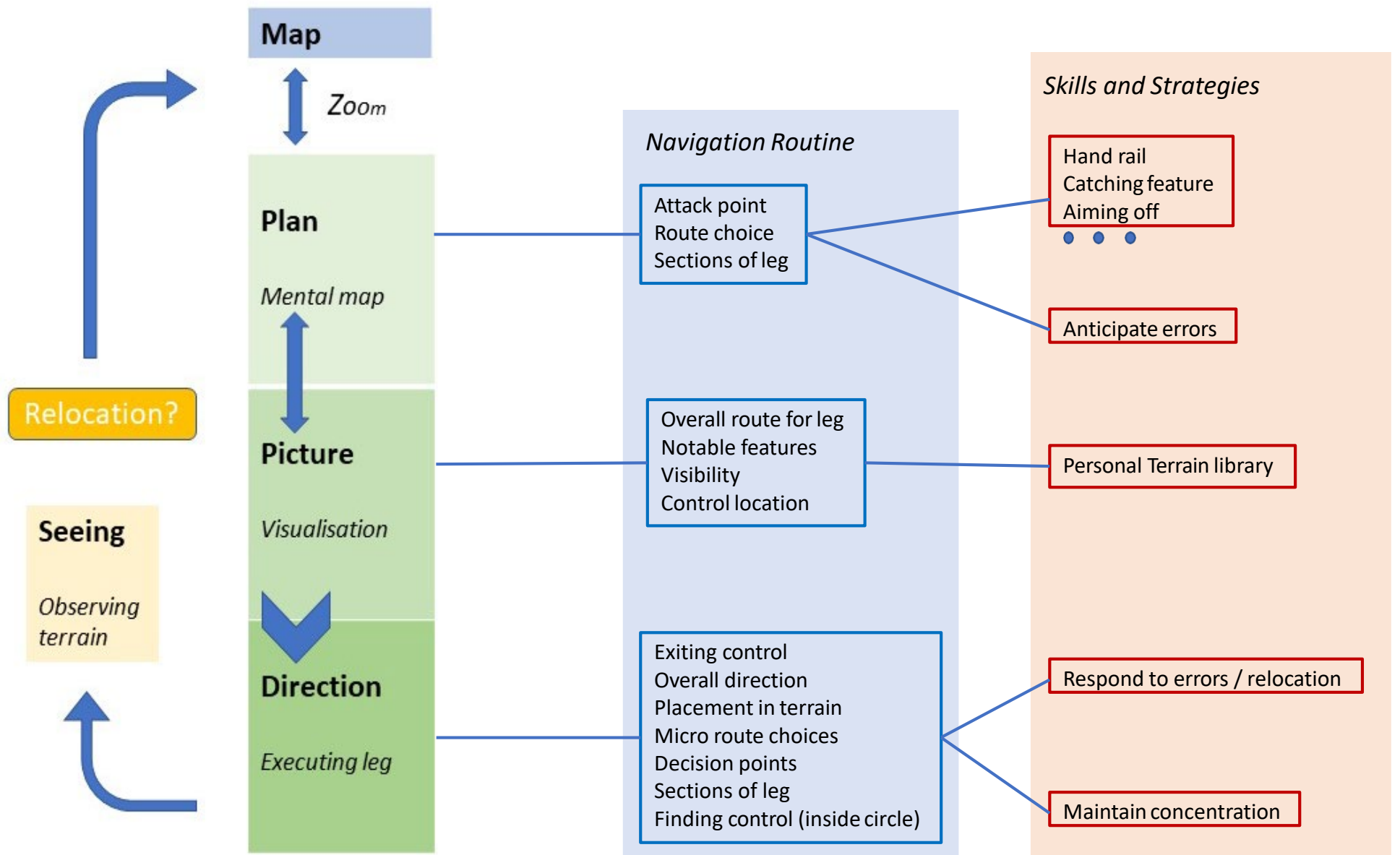
Improve how you visualise those features – build a Terrain library from experience

Keep your visualisation updated and always ahead of you

Run into your visualisation confidently



# Plan Picture Direction



Plan, Picture Direction draws on a model by Kris Jones integrated with other elements of navigation on Better Orienteering, Duncan Bayliss, 2019

This info-graphic summarises what successful orienteering navigation is built on

As your orienteering improves you can work through the ideas in all the sections of Better Orienteering and link them to the basic navigation model -  
Plan Picture Direction

The model is then linked in your mind to a range of routines, skills and strategies to use when competing

# Better Orienteering Navigation Model - systematic description

*The elements Better Orienteering uses to help you build successful navigation*

## Routines

### Pre-race

Research the map  
Start well

### Basic Navigation Routine

Map to north  
Know scale  
Thumb map  
    Exiting control  
    Route to next control  
    Finding control  
Break leg into sections  
Steady to No.1  
Map contact  
Relocate promptly  
Relate speed to navigation  
Zoom in and out on map

### Post race

Record route  
Identify losses  
Track trends  
Plan to avoid repeating errors

## Concepts

### Tool Kit of skills

Attack point  
Handrail  
Aiming off  
Catching features  
Corridor  
2D to 3D  
Simplification  
Notable features

### Advanced

Advanced Visualisation  
Library of terrain experience  
Catalogue of errors

### 5 Key Principles

Route choice  
  
Plan  
  
Direction  
  
Picture / visualisation  
  
Execution

## Strategies

### Integration and implementation

### Intermediate

Minimise losses maximise gains  
Positive attitude to mistakes  
Every leg a new beginning  
Ignore other people  
Look at options then commit  
Simplify appropriately

### Advanced

Style - don't get stuck in a rut  
Control Flow  
Virtual corridor  
Planning ahead  
Bigger picture in mind  
Categorize legs by type  
Right approach for course  
Evaluate certainty of features  
Improve distance estimation

### Beyond Advanced

Total immersion  
Not all in words  
Improve mental maps and  
visualisation  
Feelings and the terrain  
Extended race routine  
Plan your own training

The content of Better Orienteering is mapped here across the 3 main themes –  
Routines, Concepts, Strategies

The items listed are all sub-headings or sections of Better Orienteering.org



# The full orienteering cycle: from pre-race preparation to post-race analysis and training

## Pre - race

Research the map

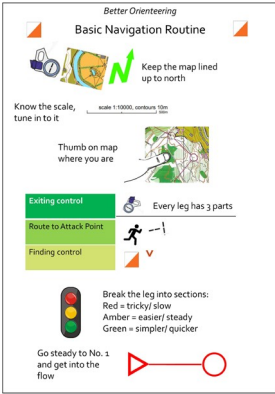


Start well

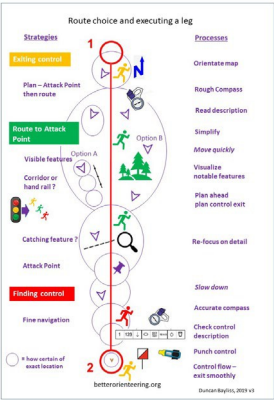


## Race

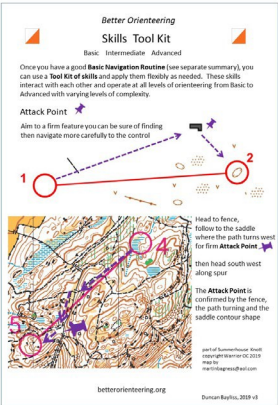
Basic Navigation Routine



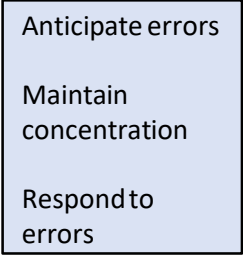
Route choice and Executing a leg



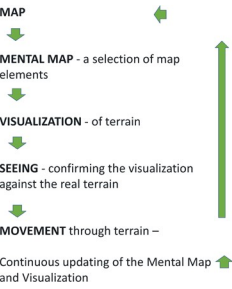
Concepts – Tool Kit of Skills



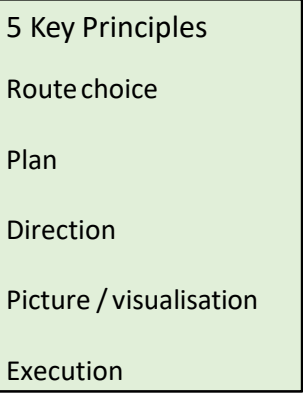
Strategies to implement routines and concepts



Advanced Visualisation



Join it all up - Process model



## Post race

Analysis

| Race Analysis Checklist        |          | Event name/date | Event name/date |
|--------------------------------|----------|-----------------|-----------------|
| Routines, concepts, strategies | Comments | Comments        | Comments        |
| BASIC NAVIGATION ROUTINE       |          |                 |                 |
| Know the scale, tune in to it  |          |                 |                 |
| Thumb on map where you are     |          |                 |                 |
| Exitting control               |          |                 |                 |
| Route to Attack Point          |          |                 |                 |
| Finding control                |          |                 |                 |
| Attack point                   |          |                 |                 |
| Route to control               |          |                 |                 |
| CONCEPTS USED                  |          |                 |                 |
| Seeing                         |          |                 |                 |
| Visualisation                  |          |                 |                 |
| Movement                       |          |                 |                 |
| Accurate compass               |          |                 |                 |
| Controlling features           |          |                 |                 |
| Route choice                   |          |                 |                 |
| Plan                           |          |                 |                 |
| Direction                      |          |                 |                 |
| Picture                        |          |                 |                 |
| Execution                      |          |                 |                 |
| Training                       |          |                 |                 |
| Analysis                       |          |                 |                 |
| Comments                       |          |                 |                 |

## Training

How well am I orienteering?



## Training plan

It can be helpful to think about the orienteering skills you are learning in different ways, so that they join up more effectively

This info-graphic maps some of the main sections of Better Orienteering against the cycle of pre-race, race, post-race, training

You can improve your orienteering by paying attention to each of these steps from researching the area, through navigating the course, to analysing how it went afterwards and training to do better in future

There are downloads related to each of those steps on Better Orienteering

# Better Orienteering Skills Matrix – Advanced Strategies

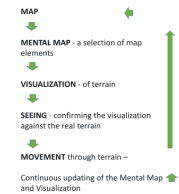
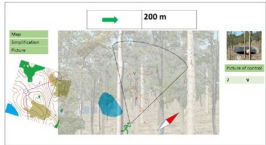
Note: This skills matrix only indicates key skills at different stages of orienteering development more skills concepts are covered on Better Orienteering

| Orienteering skill level            | Advanced skills – Routines, Concepts, Strategies   | Goals  | Free downloads on Better Orienteering  | Learning Videos<br>Link to videos in Advanced section  |
|-------------------------------------|--|--|--|--|
| <a href="#">Advanced Strategies</a> | <p>Advanced visualisation</p> <p>Reviewing <b>Routines, Concepts, Strategies</b> linked to -</p> <p>Plan – Picture – Direction</p> <p>Control Flow</p> <p>Planning ahead</p> <p>Dynamic Zoom map reading</p> <p>Adapting approach to terrain</p> <p>Orienteering style – adapting navigation to personal strengths</p> <p>Categorising legs and recognising the planner’s challenges</p> <p>Improved distance estimation</p> <p>Getting more value from the compass</p> <p>Advanced Post-race analysis</p> | <p><i><b>Visualise reliably and consistently</b></i></p> <p><i><b>Develop good flow</b></i></p> <p><i>Respond well to different types of leg and navigation challenges and terrain</i></p> <p><i>Systematically identify weaknesses and plan training to improve on them</i></p> | <p><a href="#">Plan, Picture, Direction in more detail</a></p> <p><a href="#">Map reading and visualisation diagrams</a></p> | <p><a href="#">Learning Videos Playlist</a></p> <p><a href="#">A really hard leg in Lunsen</a></p> <p><a href="#">This is what a long leg can look like</a></p> <p><a href="#">Learn to orienteer with Janne Troeng</a></p> <p><a href="#">What has happened to maps since 1965?</a></p> <p>Duncan Bayliss, 2020</p> |

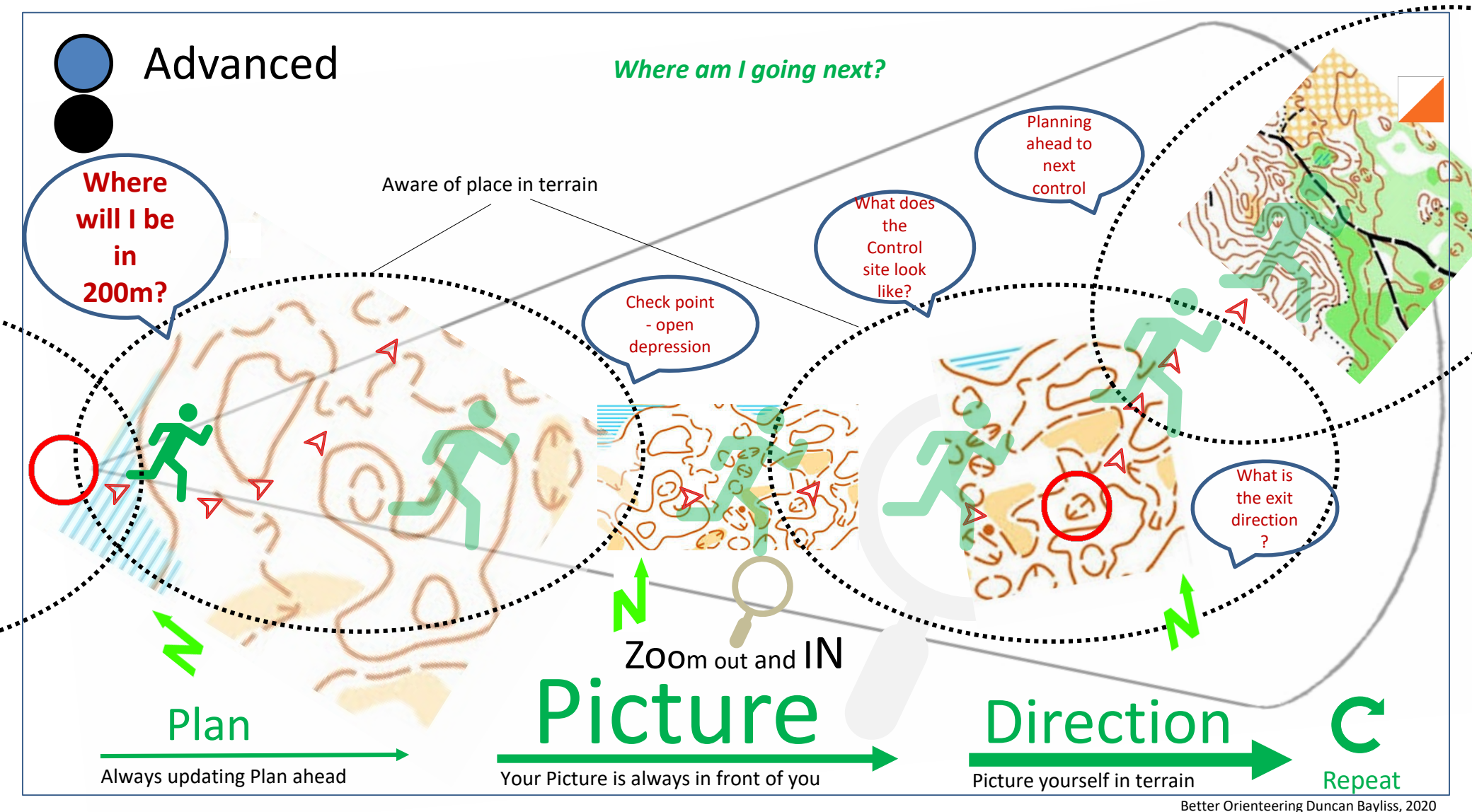


# Better Orienteering Skills Matrix – Beyond Advanced towards Elite

Note: This skills matrix only indicates key skills at different stages of orienteering development more skills concepts are covered on Better Orienteering

| Orienteering skill level                      | Skills in an integrated approach – training, preparation, race, post-race analysis  | Goals  | Free downloads on Better Orienteering  | Learning Videos<br>Link to video or playlist containing the video   |
|---|---|--|--|---|
| <a href="#">Beyond Advanced towards Elite</a> | <p><b>Joining it all up:</b><br/>Working with your psychology</p> <p><b>Improving mental maps and visualisation</b><br/>Personal Terrain Library</p> <p>Developing <b>extended race routine:</b><br/>Preparation and research,<br/>Mind set<br/>Start well<br/>Managing concentration<br/>Post-race analysis<br/>Planning training</p> <p>Learning from elite competitors</p> <p>A continuous cycle of learning and improvement</p> | <p><i>Integrating: fitness, psychology, preparation, handling pressure, health and navigation skills - <b>setting yourself up to succeed</b></i></p> <p><b><i>Joining up all your skills at race speed</i></b></p> <p><i>Minimising all small losses</i></p> <p><b><i>Build your Terrain Library</i></b></p> <p><i>Always having a <b>robust visualisation ahead of you – knowing where you will be in 200m</b></i></p> <p><i>All navigation done while running</i></p> <p><i>Understanding how to analyse your orienteering effectively</i></p> | <p><a href="#">Mental map to visualisation</a></p>  <p><a href="#">The runner’s eye view</a></p>  <p><a href="#">Further articles on skills</a></p> | <p><a href="#">Learning Videos Playlist</a></p> <p><a href="#">Albin Ridefelt would probably not approve of my route choice</a></p> <p><a href="#">Follow me by Tero</a></p> <p><a href="#">WOC Long Qual headcam</a></p> <p><a href="#">You need to know these terrain objects in Lunsen</a></p> <p><a href="#">Intricate contours</a></p> <p><a href="#">Last run of the king</a></p> <p>Duncan Bayliss, 2020</p> |

You will use different types of navigation technique for the challenges at different points in a course



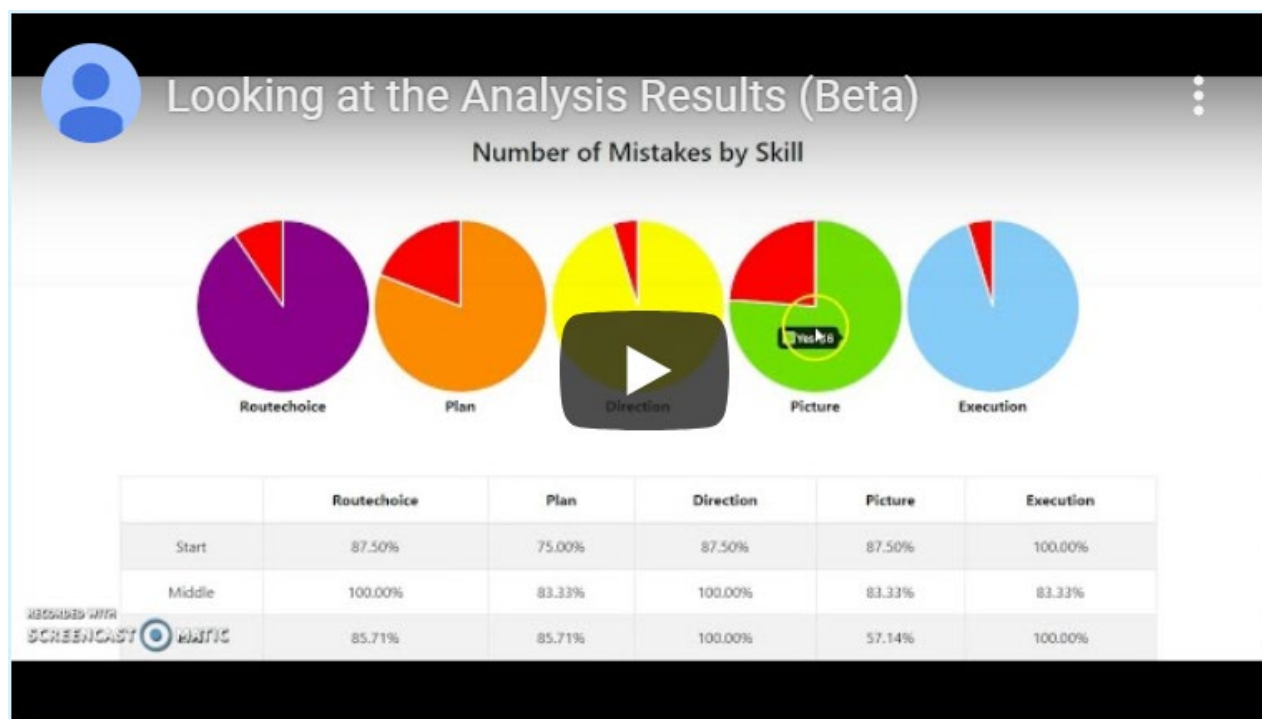
You add new notable features to your Picture as you move as well as more detail when needed. You no longer think just one leg at a time. Your Picture or visualisation is always ahead of you. You know what the control will look like and your exit direction



# Better Orienteering

## Post-race analysis

What went well ?  
What went wrong ?  
What are my priorities  
for improvement ?



Consider trying this web analysis tool at [elevate.run](http://elevate.run)

This summary should be used together with the [Betterorienteering.org](http://Betterorienteering.org) website



# Race Analysis Checklist

|                                  |                             |                 |  |                 |
|----------------------------------|-----------------------------|-----------------|--|-----------------|
| Routines, concepts, strategies   |                             | Event name/date |  | Event name/date |
|                                  | Yes/No<br>secs/mins<br>lost | Comments        |  | Comments        |
| BASIC NAVIGATION ROUTINE         |                             |                 |  |                 |
| Map to north                     |                             |                 |  |                 |
| Exiting right direction          |                             |                 |  |                 |
| Attack point                     |                             |                 |  |                 |
| Finding accurately               |                             |                 |  |                 |
| Map read correctly               |                             |                 |  |                 |
| CONCEPTS USED                    |                             |                 |  |                 |
| Aiming off                       |                             |                 |  |                 |
| Hand rail                        |                             |                 |  |                 |
| Distance estimation accurate     |                             |                 |  |                 |
| Catching feature                 |                             |                 |  |                 |
| Rough compass bearing            |                             |                 |  |                 |
| Accurate compass bearing         |                             |                 |  |                 |
| STRATEGY                         |                             |                 |  |                 |
| Steady to No 1                   |                             |                 |  |                 |
| Route appropriate to skill level |                             |                 |  |                 |
| Running within thinking          |                             |                 |  |                 |
| ERRORS TOTAL                     | Mins/secs                   |                 |  |                 |
|                                  |                             |                 |  |                 |

As a minimum, after each race:

- 1 Draw your route on your map
- 2 Estimate where you lost time
- 3 Keep your maps in date order
- 4 Look back over them to see if you keep making the same mistakes

You can also try more detailed analysis such as with this table



|   |           |  |  |  |
|---|-----------|--|--|--|
| <b>INTERMEDIATE STRATEGY</b>                              |           |  |  |  |
| No talking  |           |  |  |  |
| Ignored other runners                                     |           |  |  |  |
| Anticipating possible errors, planning for them           |           |  |  |  |
| Relocating quickly  |           |  |  |  |
| Treating every leg as a new beginning                     |           |  |  |  |
| Good control flow   |           |  |  |  |
| Committing to route choice                                |           |  |  |  |
| Varying speed to fit terrain / navigation                 |           |  |  |  |
| Simplifying confidently                                   |           |  |  |  |
| <b>ERRORS TOTAL</b>                                       | Mins/secs |  |  |  |
|   |           |  |  |  |
| <b>ADVANCED CONCEPTS</b>                                  |           |  |  |  |
| Simplifying and seeing notable features on map and ground |           |  |  |  |
| Identifying corridors                                     |           |  |  |  |
| Planning ahead  |           |  |  |  |
| Overall shape of terrain visualised                       |           |  |  |  |
| Categorising types of leg and responding appropriately    |           |  |  |  |
| Recognising certainty of features                         |           |  |  |  |
| Using less words  |           |  |  |  |
| Quick and accurate terrain visualisation – Mental Map     |           |  |  |  |
| Optimum route choice?                                     |           |  |  |  |
|   |           |  |  |  |

Race Analysis table

Maybe try this type of more detailed analysis for a few races to see where your weaknesses are

You can also try a more interactive analysis tool at  
  
elevate.run



Photo: Steve Rush



|   |  |  |  |  |
|---|--|--|--|--|
| <b>EXTENDED RACE ROUTINE</b>              |  |  |  |  |
| Researched map and courses                |  |  |  |  |
| Calm mind set                             |  |  |  |  |
| Good sleep, eating well                   |  |  |  |  |
| Started well                              |  |  |  |  |
| Positive emotional response to challenges |  |  |  |  |
| Managed and maintained concentration      |  |  |  |  |
| Statistics                                |  |  |  |  |
| Distance                                  |  |  |  |  |
| Time                                      |  |  |  |  |
| Mins/ km                                  |  |  |  |  |
| Placing                                   |  |  |  |  |
| Potential placing minus errors            |  |  |  |  |



Photo: Steve Rush

Do remember that orienteering requires a continual process of fine tuning your skills

You will never reach a point where you have got it all sorted and needing no improvement !

There is much more material available on the [Betterorienteering.org](http://Betterorienteering.org) website

I hope that using Better Orienteering has been helpful and enjoyable way to explore orienteering navigation and develop your skills

Duncan Bayliss, 2019



## Resources and Books section of Better Orienteering

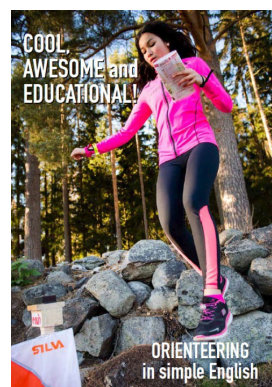
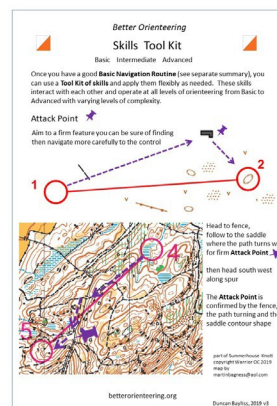
This is an overview of the types of resources contained on Better Orienteering.org – graphical summaries, videos, discussion of skills, links to free downloads and more!

The website contains more material than is in this summary

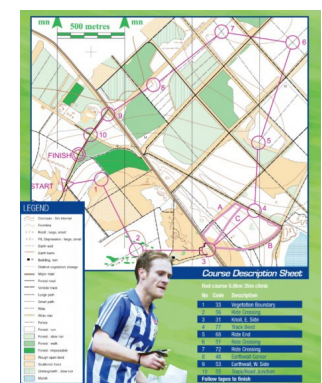
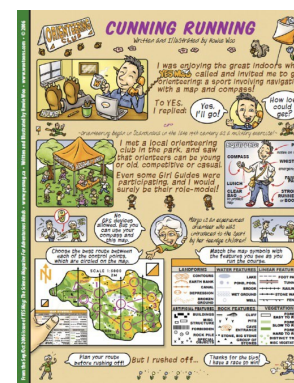
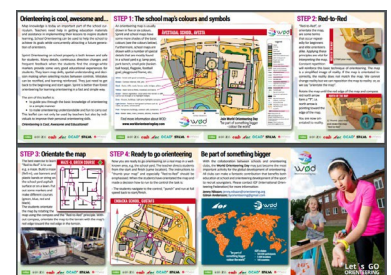
## Better Orienteering - Download, Links, Resources, Books

*The resources Better Orienteering connects you with to improve your orienteering*

## Videos



| Routines, concepts,<br>strategies        | Event name/date           | Event name/date |
|--|---------------------------|-----------------|
| <b>BASIC NAVIGATION<br/>ROUTINE</b>      | Yes/<br>No/<br>Not<br>Yet | Comments        |
| Map to<br>map                            |                           |                 |
| Using right direction                    |                           |                 |
| Showing path                             |                           |                 |
| Finding accuracy                         |                           |                 |
| Map route correctly                      |                           |                 |
| <b>CONCEPTS USED</b>                     |                           |                 |
| Average off                              |                           |                 |
| Top of                                   |                           |                 |
| Absolute distance                        |                           |                 |
| Measurement                              |                           |                 |
| Catching location                        |                           |                 |
| Through categories                       |                           |                 |
| Distance                                 |                           |                 |
| Absolute distances                       |                           |                 |
| <b>CHALLENGE</b>                         |                           |                 |
| How to                                   |                           |                 |
| Yes /<br>No /<br>Not applicable to skill |                           |                 |
| Working within danger                    |                           |                 |
| <b>CRISIS<br/>TOTAL</b>                  | Miles/h                   |                 |



## Free resources and downloads

## Suggested Books

McNeill (2010) Orienteering: skills, techniques, training

Ferguson and Turbyfill (2013) Discovering orienteering

Gueorgiou (2019) The winning eye





# Better Orienteering

Map extracts in  
Skills Tool Kit  
copyright  
Warrior OC 2018  
maps by  
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[See  
betterorienteering.org](http://betterorienteering.org)

[for more information](http://betterorienteering.org)

[Explanation of skills](http://betterorienteering.org)

[Links to resources](http://betterorienteering.org)

[Further videos and more](http://betterorienteering.org)

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