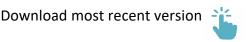




### **Summary**Duncan Bayliss



This summary is web-linked to the Betterorienteering.org website







### Better Orienteering in overview

What the Betterorienteering.org covers



### Beginner

What you need to get started

### **Basic Navigation Routine**

The basis for all successful orienteering navigation

### Skills Tool Kit

The core orienteering skills to progress



### Skills progression

Skills in stages from Beginner to Intermediate to Advanced

### Strategies

Ways to implement the skills in practice



### Resources and links

Where to take your orienteering further

A key principle of Better Orienteering – Visual skills are explored in a visual way

Use this summary together with the Betterorienteering.org website

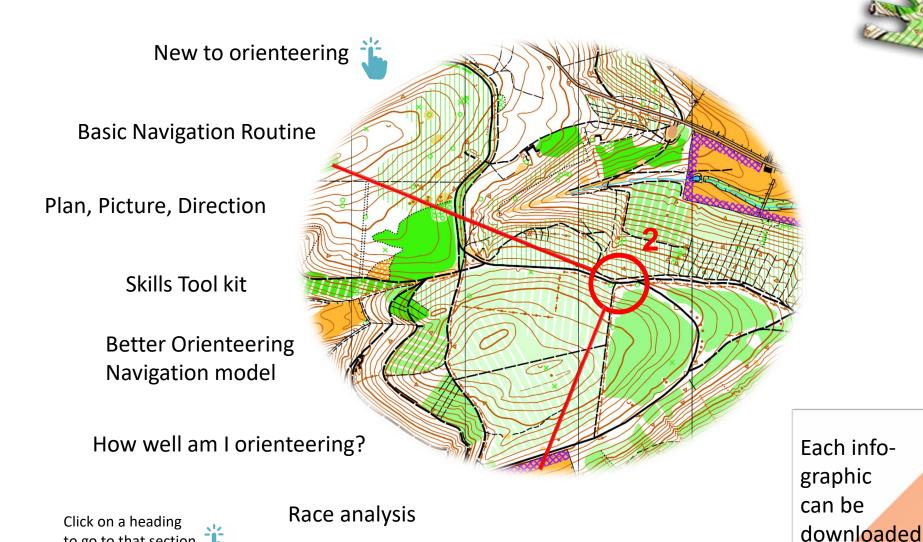




to go to that section

### What is included?

separately



Use this summary together with the Betterorienteering.org website

### This is an overview of what is contained on Better Orienteering.org

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

The resources Better Orienteering connects you with to improve your orienteering

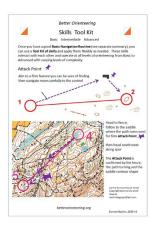
### **Videos**







### Free resources and downloads

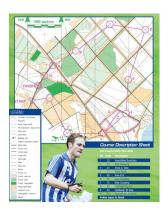








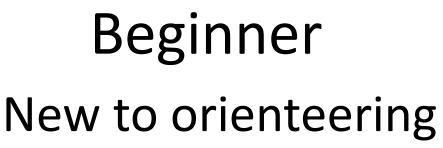






Suggested Books McNell (2010) Orienteering: skills, techniques, training
Ferguson and Turbyfill (2013) Discovering orienteering
Gueorgiou (2019) The winning eye







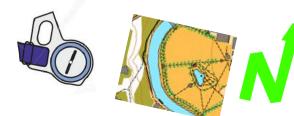
Try this introductory video

An excellent introduction video

### Better Orienteering



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



Keep the map lined up to north



Know the scale

scale 1:10000, contours 10m

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
Tick off features you pass

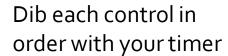


Know what the symbols mean – see other side of this card





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









Orienteering navigation 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

betterorienteering.org



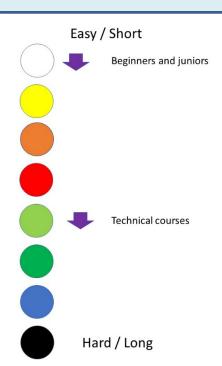
**Duncan Bayliss** 

Version 3.0 2019

Use these tips to help beginners understand the basics they need to orienteer

If you download them separately from Betterorienteering.org they are scaled for easy viewing on a smartphone

### Colour coding of courses explained



### **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

© Maprunner 2017.

Copies of these man symbols and of the IOF pictorial control descriptions can be downloaded from www.maprunner.co.uk

The ISOM 2017 specification can be downloaded from www.orienteering.org



### Man-made features Vegetation



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  $\overline{}$ entered

7. Building Canopy

C3 o 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 0

Boulder cluster Boulder field

Dense boulder field 郯 

Stony ground: slow Stony ground: walk

Stony ground: fight Sandy ground

Bare rock Trench



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



Control point



Control number



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







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 Control number
- Control code
- Which of any similar feature
- D Control feature
- **Appearance**
- Dimensions/combinations/bend
- Location of control flag
- **H** Other information

### C - Which Feature

**D** - Control Feature

Northern Upper Lower

Middle

See below.

### Low Shallow Deep # Overgrown Open Rocky, Stony \*\* Marshy Sandy 各公 Needle leaved **Broad leaved** Ruined

E - Appearance

### Location of Flag

West Side

**•**O

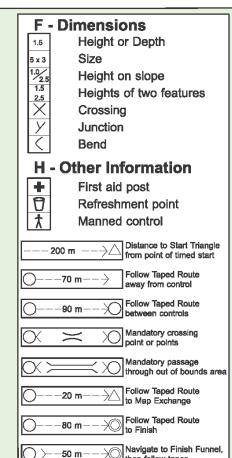
Q South East Edge 0 East Part South West Corner (inside) North Corner (outside)

1 North West Tip South East End

**Upper Part** Lower Part ń Top

Foot O, North East Foot

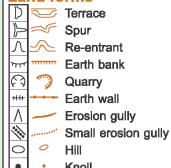
Γ. Beneath Between



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

Beginners courses have a description in words also





Knoll

💢 Saddle Depression

Small depression

Broken ground

Ant hill, Termite mound

### Rock and boulders Cliff, Crag

Rock pillar Cave

Boulder

S Boulder field Boulder cluster

Stony ground

Bare rock Narrow passage

Trench

### Water and marsh



River, Stream, Watercourse Minor water channel, Ditch

Narrow marsh Marsh

Firm ground in marsh

õ **Spring** ₩

Water tank, Water trough

### Vegetation

Open land Semi-open land Forest corner Clearing **※ Thicket** 

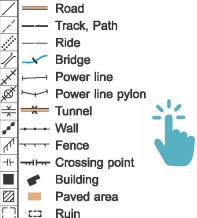
Linear thicket Vegetation boundary Copse Ф

Д Prominent tree

Root stock, Tree stump



### **Man-made features**



then follow tapes

Navigate to Finish, no tapes

Pipeline, Bobsleigh track

+ Tower, Pylon Shooting platform

Boundary stone, Cairn Fodder rack

Platform Monument, Statue 0 x Δ

0

Canopy

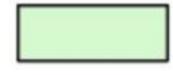
Stairway

Out of bounds area

### **Special features**











### **Basic Navigation Routine**



Try this video collection of basic skills

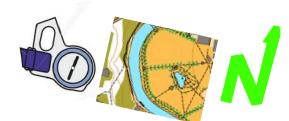
This video is available to view in the Basic Navigation Routine section of Betterorienteering.org

### **Better Orienteering**



### **Basic Navigation Routine**





Keep the map lined up to north

Know the scale, tune in to it

scale 1:10000, contours 10m



Thumb on map where you are



**Exiting control** 



Every leg has 3 parts

Route to Attack Point





Finding control







Break the leg into sections: Red = tricky/ slow Amber = easier/ steady Green = simpler/ quicker

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, relocate straight away to a firm feature

Only run as fast as you can think





Walk when the map reading requires it



Orienteering navigation is not the same as using a road atlas or smartphone. You must simplify and zoom in or out on detail as needed

betterorienteering.org

Duncan Bayliss
Version 3.0 2019

Page 2 Basic Navigation Routine

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





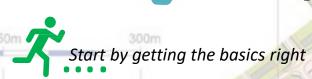
## Intermediate A Skills Tool Kit



These 9 videos cover Intermediate to Advanced skills

Use this summary together with the Betterorienteering.org website

### Better Orienteering Navigation Model - simple version



Have a reliable Basic Navigation Routine



Identify Attack point

Be systematic

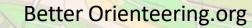
Plan Route
Map + Compass for direction
Visualise where you are going
Execute the leg in stages

Draw on a Tool Kit of Skills



Zoom n and out

Parallel error?



Visualise map in 3D in your mind



### Use a range of strategies

Anticipate errors

Maintain concentration

Respond to errors

Image: worldofo.com

As you move beyond developing a Basic Navigation Routine this is an overview of what you will need to explore and join up

The concept of a Skills Tool Kit is covered next

### **Better Orienteering**





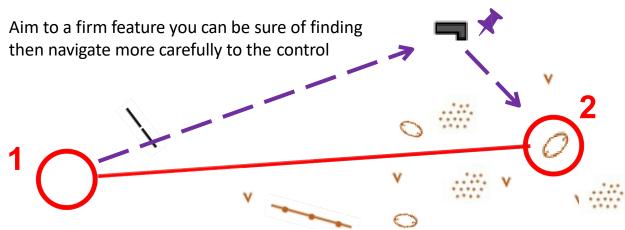
### Skills Tool Kit

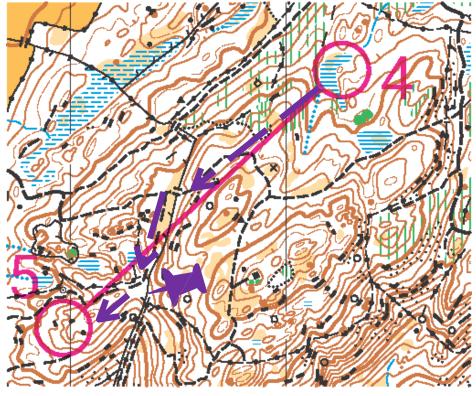
Basic Intermediate Advanced

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







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

betterorienteering.org

Duncan Bayliss, 2019 v3

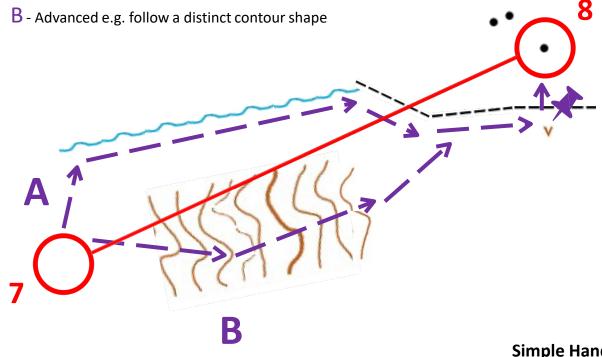
The Skills Tool Kit illustrates a set of core concepts you can use to navigate

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



### 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 martinbagness@aol.com

betterorienteering.org

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

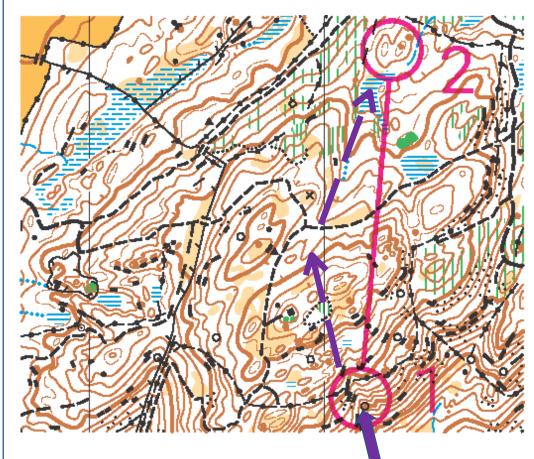
They are skills every orienteer needs to know

### **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 <u>martinbagness@aol.com</u>

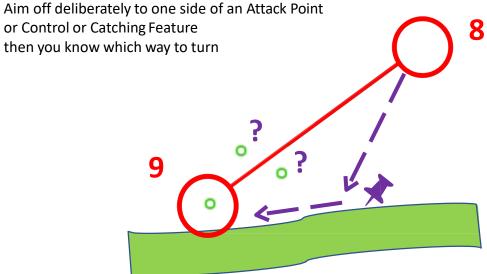
descend on Rough Bearing the path junction will be seen to the left, cross path follow re-entrant as **Hand Rail** to where it levels to marsh onto small hill to control

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

betterorienteering.org

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 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

betterorienteering.org

The Skills in this Tool Kit can be combined

This concept -

Aiming Off

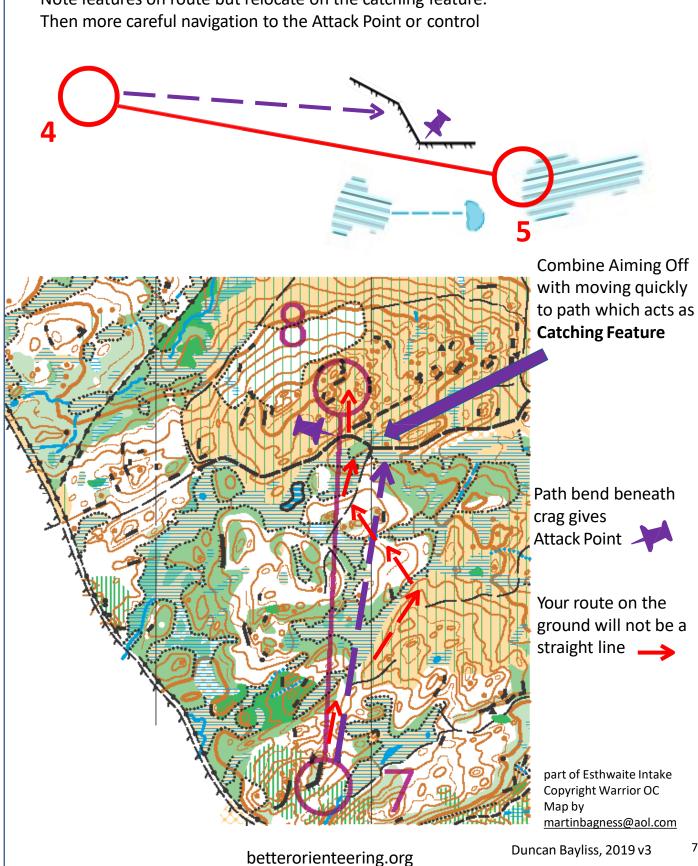
can often be used in conjunction with the next one -

**Catching Features** 

### Catching feature

Simplify the level of detail you are reading and move quickly to a firm feature Use Rough Compass to give direction

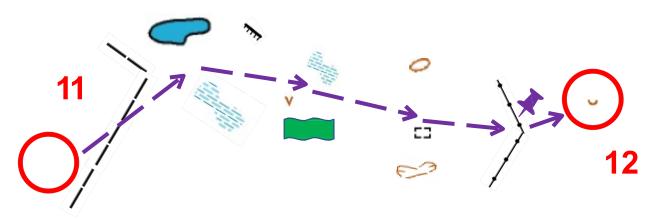
Note features on route but relocate on the catching feature.



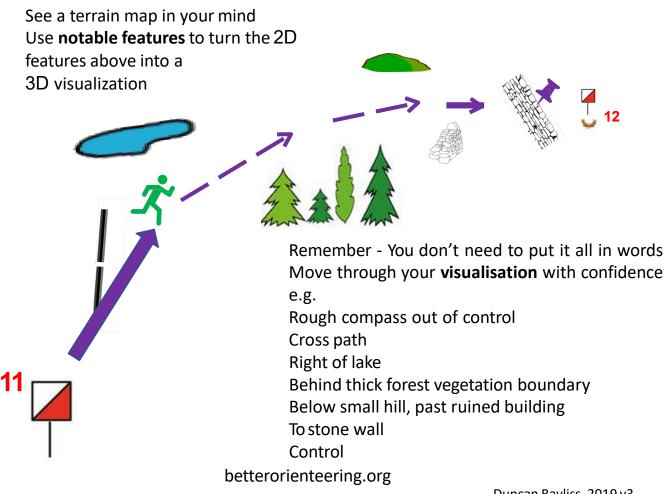
Aiming for a Catching
Feature can help you
simplify the amount of
detail you need to follow
as you move through the
terrain towards the next
control

### 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



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 180 degree error? Move out to a firm feature Come back in with certainty Drift? **Short on** Distance? Parallel error? In this example the leg is contained within field boundaries **Find control**

### Advanced Relocation - more complex courses and longer legs

firm feature

= how certain you are of your exact location

**Unsure? Move out to** 

If you are unsure exactly where you are, <u>do you know where you are going?</u>
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? **Relocation** can even be a deliberate part of a route choice betterorienteering.org

Mistakes will happen

Learning how to relocate quickly and effectively is essential

150

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

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 Processes Exiting control Orientate map** Plan – Attack Point **Rough Compass** then route **Read description Route to Attack** Simplify **Point** Option B Move quickly Option A Visible features **Visualize** notable features **Corridor or** hand rail? Plan ahead plan control exit **Catching feature?** Re-focus on detail **Attack Point** Slow down **Finding control Accurate compass Fine navigation Check control** description **Punch control** = how certain of

betterorienteering.org

Control flowexit smoothly

Duncan Bayliss, 2019 v3

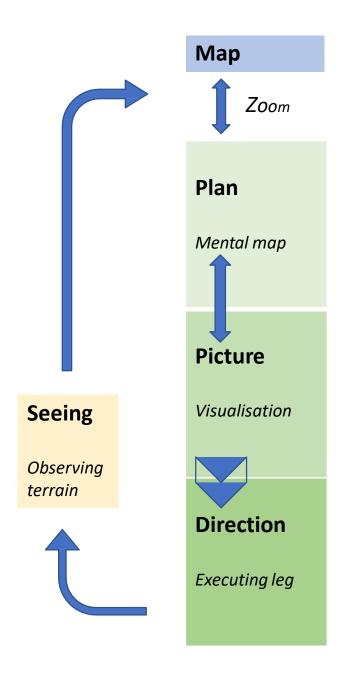
exact location

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?





### **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 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





## Advanced Strategies How to join it all up

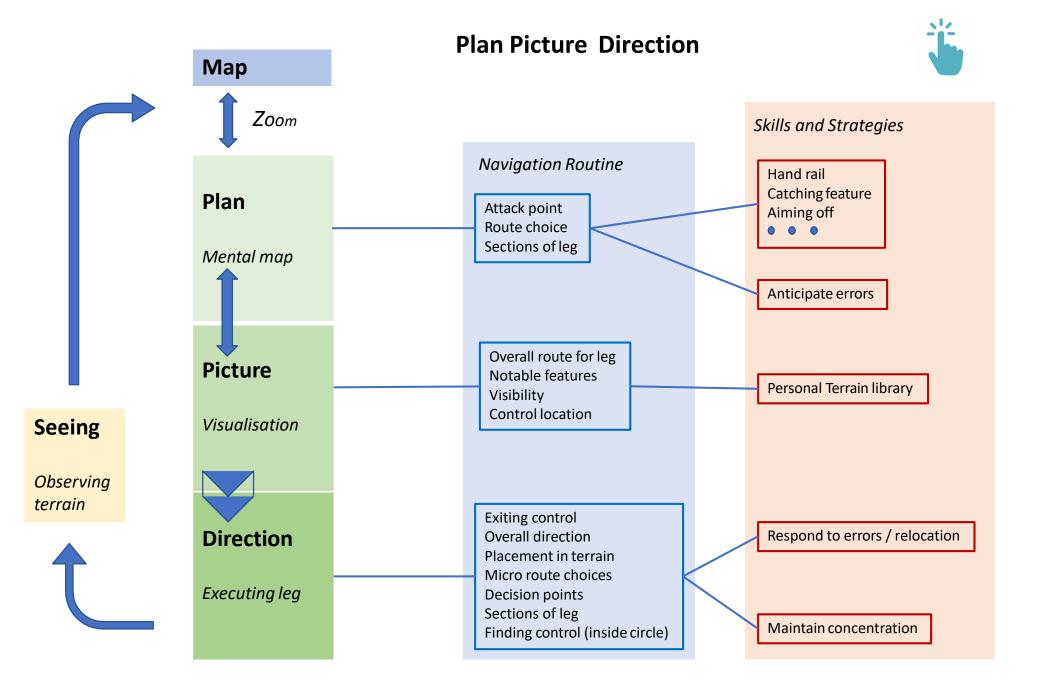
And

### **Beyond Advanced**



Be inspired by this video

This summary should be used together with the Betterorienteering.org website



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

### **Better Orienteering Navigation Model**

The model Better Orienteering uses to help you explore orienteering navigation

### Pre - race



Research the map

### Basic Navigation Routine



### Concepts –

Tool Kit of Skills

Race



### Post race

Analysis

Yes/No secs/mins lost	Comwents	Comment
Mins/secs		
	Minulsecs	Majora

### Start well



### Route choice and Executing a leg



Strategies to implement routines and concepts

Anticipate errors

Maintain concentration

Respond to errors

Join it all up -Process model

MOVEMENT through terrain

Continuous updating of the Mental Map and Visualization

Advanced

Visualisation

	5 Key Principles
	Route choice
	Plan
	Direction
	Picture / visualisation
١	

Execution

### **Training**

How well am I orienteering?



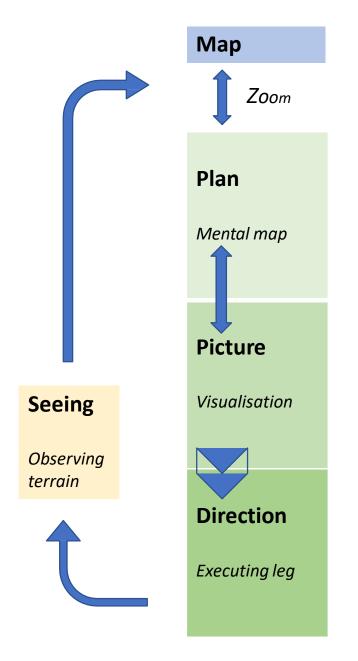
**Training plan** 

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

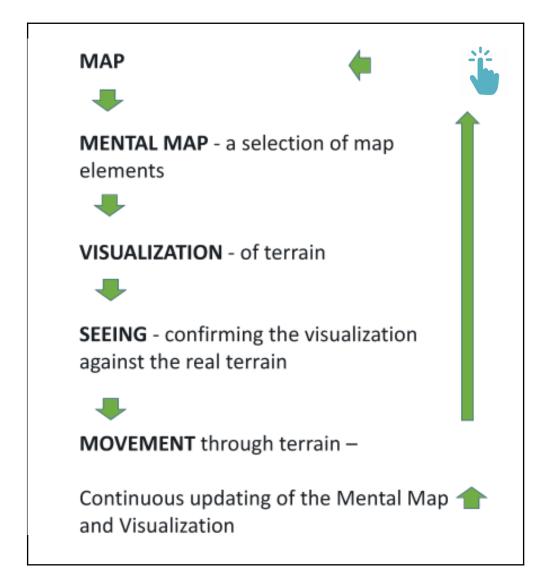
This info-graphic maps the main sections of Better Orienteering against the cycle of prerace, race, post-race, training

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



### 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

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



## How well am I Orienteering? A self diagnostic test



Photo: Steve Rush

### 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 linearfeatures

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 your 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



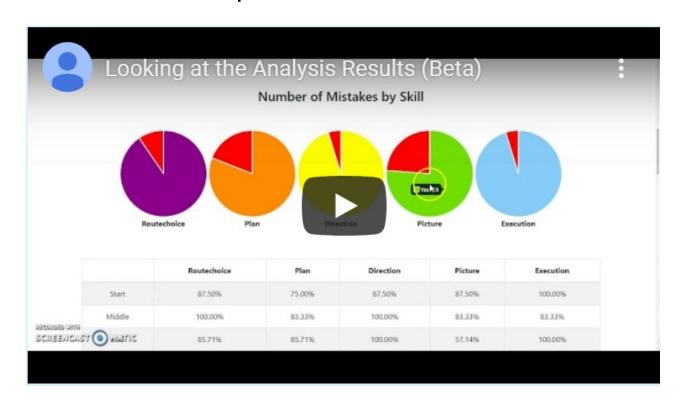
Photo: Steve Rush





### Race analysis

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



### Consider trying this web analysis tool at elevate.run

This summary should be used together with the Betterorienteering.org website

### Race Analysis Checklist

Routines, concepts, strategies	(38)	Event name/date	Event name/date
	Yes/No secs/mins lost	Comments	Comments
BASIC NAVIGATION ROUTINE		HI	
Map to north		4-/3	
Exiting right direction			3000
Attack point	411		
Finding accurately			
Map read correctly	AH R		
CONCEPTS USED	11/5		
Aiming off	NC		
Hand rail	Ai.		
Distance estimation accurate		^	
Catching feature	10		
Rough compass bearing		***	10
Accurate compass bearing	1//		
STRATEGY	4/		
Steady to No 1			== 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

### INTERMEDIATE **STRATEGY** 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 **ERRORS** Mins/secs TOTAL **ADVANCED** CONCEPTS Simplifying and seeing notable features on map and ground

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

# 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?



EXTENDED RACE ROUTINE			
Researched map and courses	No. 17-		
Calm mind set			
Good sleep, eating well			
Started well			
Positive emotional response to challenges	1/2/3/		
Managed and maintained concentration			
Statistics		0	
Distance	A STATE OF THE STA		Photo: Steve Rush
Time			Filoto. Steve Nusin
Mins/ km	N Manual		
Placing	NA CONTRACTOR OF THE PARTY OF T		
Potential placing minus errors			

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 website

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

Duncan Bayliss, 2019



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This summary should be used together with the Betterorienteering.org website