

# What is Orienteering?



# Overview

- What is Orienteering?
- The Map and Symbols
- Basic Orienteering Skills
- Why Orienteer?
- Where can I try it?



Video: <https://www.youtube.com/watch?v=2BkdErckeYM>

# The basic idea

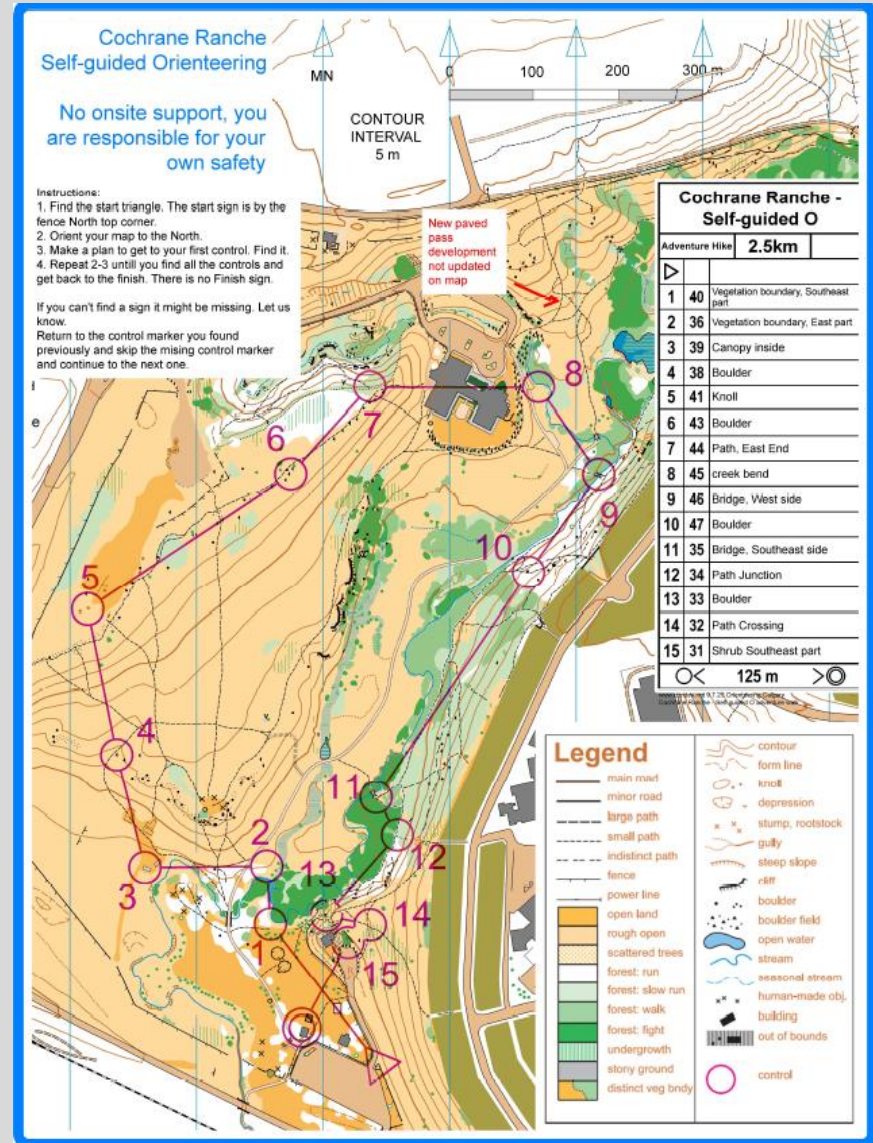
- Orienteering is a navigational sport uses traditional/paper map and compass
- Participants must navigate from one point to another completing a set course on the map
- Orienteering can be enjoyed as a leisurely walk in the woods or as a highly competitive race.
- Originated from Scandinavia over a hundred years ago and has since spread throughout the world with international events and established World Championships.
- Generally 3 type of races:
  - Sprint – urban, short distance ( 3-5 km)
  - Middle – forest, technical ( 3-5 km)
  - Long – forest, technical and long distance ( 5-10 km)

# What do you need to try orienteering?

- Map and a set course
- Basic skills :
  - read the map by understanding symbols
  - orient your map (or compass work)
  - run or walk to complete the course

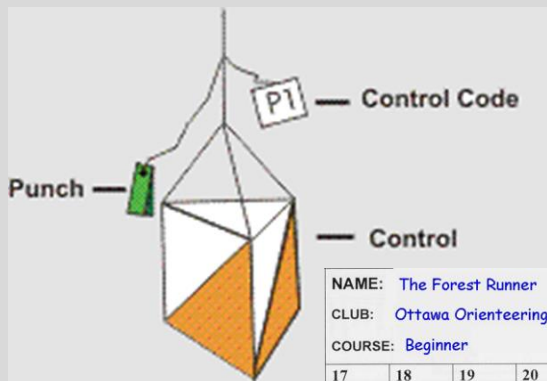
# The Map and the Course...

- **The map:** is a special small-scale topo map with many details about the land and features
- **The course:** consists of a **start**, a series of **control sites** to be visited in order, and a **finish**.



# What are the controls?

- A **control** marks the location you need to find
- Old-school Punches or electronic timing
- The **Control description** help to know what are you looking for



|                                       |                      |    |    |    |    |    |    |
|---------------------------------------|----------------------|----|----|----|----|----|----|
| NAME: <b>The Forest Runner</b>        | START: <b>10:40</b>  |    |    |    |    |    |    |
| CLUB: <b>Ottawa Orienteering Club</b> | FINISH: <b>11:12</b> |    |    |    |    |    |    |
| COURSE: <b>Beginner</b>               | TIME: <b>32:00</b>   |    |    |    |    |    |    |
| 17                                    | 18                   | 19 | 20 | 21 | 22 | 23 | 24 |
| 9                                     | 10                   | 11 | 12 | 13 | 14 | 15 | 16 |
| 1                                     | 2                    | 3  | 4  | 5  | 6  | 7  | 8  |

| Baker Park Wed Night |                |  |   |
|----------------------|----------------|--|---|
| 1. TRY IT short      | 1.1 km (1063m) |  |   |
| ▶                    |                |  |   |
| 1 37                 | ×              |  |   |
| 2 35                 | ↙              |  | ○ |
| 3 32                 | ↙              |  |   |
| 4 34                 | ×              |  | ○ |
| 5 38                 | ▲              |  | ○ |
| 6 39                 | ↗              |  | — |
| 7 42                 | ⌘              |  |   |
| 8 41                 | ↙              |  | ○ |
| 9 44                 | ↙              |  | < |
| 10 40                | ■              |  | ○ |
| ○< 100 m >◎          |                |  |   |

| Baker Park Wed Night |                                     |  |
|----------------------|-------------------------------------|--|
| 1. TRY IT short      | 1.1 km (1063m)                      |  |
| ▶                    |                                     |  |
| 1 37                 | Bench                               |  |
| 2 35                 | Forest corner, South edge           |  |
| 3 32                 | Forest corner (Inside)              |  |
| 4 34                 | Bench                               |  |
| 5 38                 | Monument or Statue, South side      |  |
| 6 39                 | Wall, West End                      |  |
| 7 42                 | Shrub                               |  |
| 8 41                 | Forest corner, South edge           |  |
| 9 44                 | Forest corner, West corner (inside) |  |
| 10 40                | Gazebo, North side                  |  |
| ○< 100 m >◎          |                                     |  |

# Orienteering basics

## Video by British Orienteering:

<https://www.youtube.com/watch?v=26Zc5AVkFis>

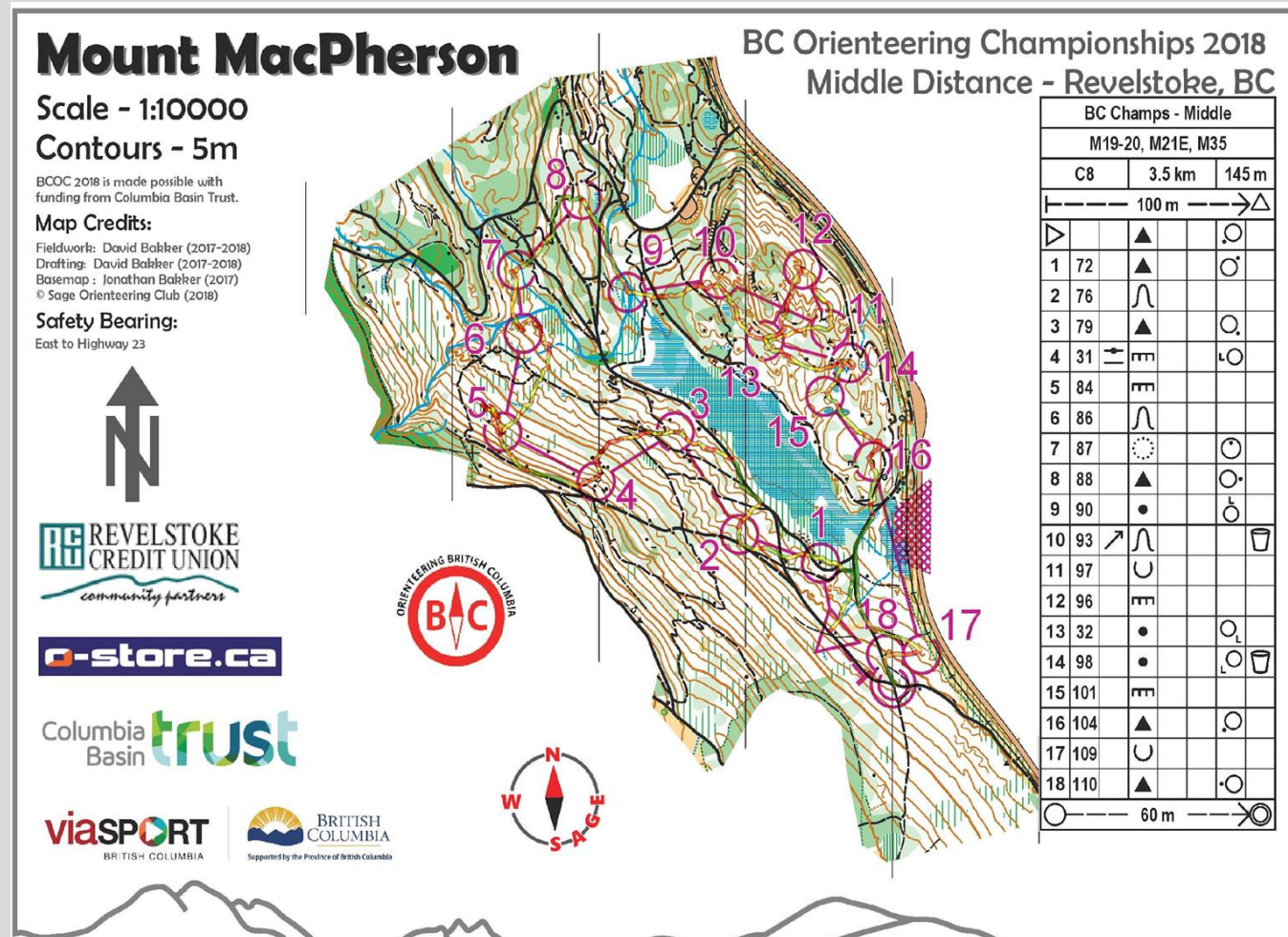
# The Map





# What's on the map ?

- Name
- Scale
- Gridlines
- Control description
- Mappers
- Safety notes



# The Scale

- **Map Scale**

The distance on the map relative to the distance in the terrain.

**1 : 5,000** 1 cm on the map = 5000cm = 50 m on the ground

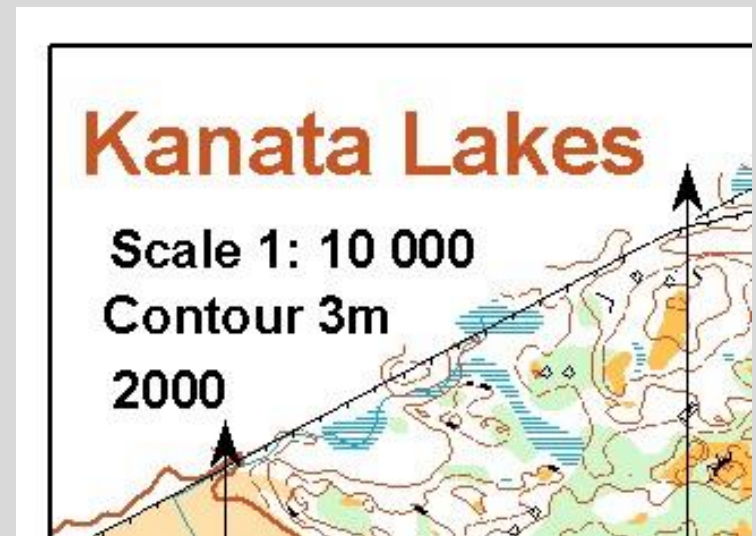
**1 : 10,000** 1 cm on the map = 100 m on the ground

**1 : 15,000** 1 cm on the map = 150 m on the ground

- **Contour Interval**

The contour lines describe the land features

The difference in elevation between two contour lines in meter.



# IOF Orienteering Map Symbols

## Land forms

|  |                           |
|--|---------------------------|
|  | Contour                   |
|  | Index contour             |
|  | Form line                 |
|  | Slope line                |
|  | Contour value             |
|  | Earth bank                |
|  | Earth wall                |
|  | Small earth wall          |
|  | Erosion gully             |
|  | Small erosion gully       |
|  | Knoll                     |
|  | Small knoll               |
|  | Elongated knoll           |
|  | Depression                |
|  | Small depression          |
|  | Pit                       |
|  | Broken ground             |
|  | Special land form feature |

## Water and marsh

|  |                             |
|--|-----------------------------|
|  | Lake                        |
|  | Pond                        |
|  | Waterhole                   |
|  | Uncrossable river           |
|  | Crossable watercourse       |
|  | Crossable small watercourse |
|  | Minor water channel         |
|  | Narrow marsh                |
|  | Uncrossable marsh           |
|  | Marsh                       |
|  | Indistinct marsh            |
|  | Well                        |
|  | Spring                      |
|  | Special water feature       |

## Rock and boulders

|  |                     |
|--|---------------------|
|  | Impassable cliff    |
|  | Rock pillars/cliffs |
|  | Passable rock face  |
|  | Rocky pit           |
|  | Cave                |
|  | Boulder             |
|  | Large boulder       |
|  | Boulder field       |
|  | Boulder cluster     |
|  | Stony ground        |
|  | Open sandy ground   |
|  | Bare rock           |

## Man-made features

|  |                               |
|--|-------------------------------|
|  | Motorway                      |
|  | Major road                    |
|  | Minor road                    |
|  | Road                          |
|  | Vehicle track                 |
|  | Footpath                      |
|  | Small path                    |
|  | Less distinct small path      |
|  | Narrow ride                   |
|  | Visible path junction         |
|  | Indistinct junction           |
|  | Footbridge                    |
|  | Crossing point with bridge    |
|  | Crossing point without bridge |
|  | Railway                       |
|  | Power line                    |
|  | Major power line              |
|  | Tunnel                        |
|  | Stone wall                    |
|  | Ruined stone wall             |
|  | High stone wall               |
|  | Fence                         |
|  | Ruined fence                  |
|  | High fence                    |
|  | Crossing point                |
|  | Building                      |
|  | Settlement                    |
|  | Permanently out of bounds     |
|  | Paved area                    |
|  | Ruin                          |
|  | Firing range                  |
|  | Grave                         |
|  | Crossable pipeline            |
|  | Uncrossable pipeline          |
|  | High tower                    |
|  | Small tower                   |
|  | Cairn                         |
|  | Fodder rack                   |
|  | Special man-made feature      |

## Technical symbols

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

## Vegetation

|  |   |
|--|---|
|  | Open land                                     |
|  | Open land with scattered trees                |
|  | Rough open land                               |
|  | Rough open land with scattered trees          |
|  | Forest: easy running                          |
|  | Forest: slow running                          |
|  | Undergrowth: slow running                     |
|  | Forest: difficult to run                      |
|  | Undergrowth: difficult to run                 |
|  | Vegetation: very difficult to run, impassable |
|  | Forest runnable in one direction              |
|  | Orchard                                       |
|  | Vineyard                                      |
|  | Distinct cultivation boundary                 |
|  | Cultivated land                               |
|  | Distinct vegetation boundary                  |
|  | Indistinct vegetation boundary                |
|  | Special vegetation feature                    |

## Overprinting symbols

|  |                      |
|--|----------------------|
|  | Start                |
|  | Control point        |
|  | Control number       |
|  | Line                 |
|  | Marked route         |
|  | Finish               |
|  | Uncrossable boundary |
|  | Crossing point       |
|  | Out-of-bounds area   |
|  | Dangerous area       |
|  | Forbidden route      |
|  | First aid point      |
|  | Refreshment point    |





# The map legend and symbols

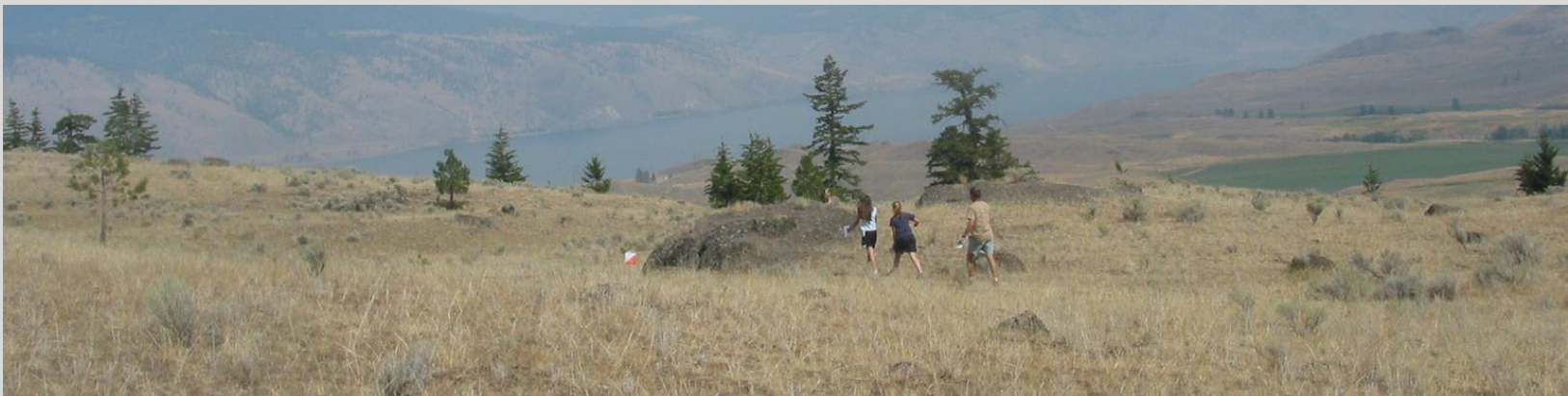
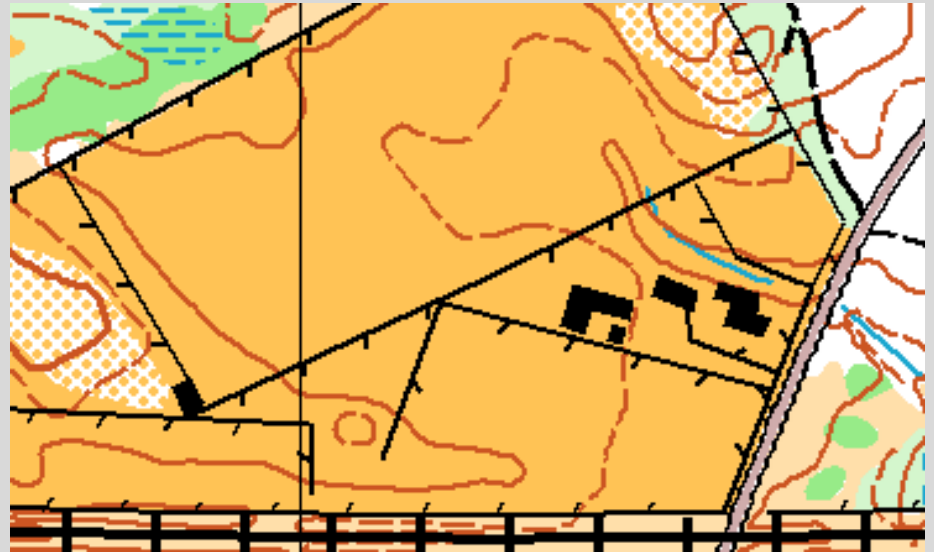
- Governed by IOF
- It's exactly the same all over the world

# Vegetation

Yellow: Open Land


## Vegetation

-  Open land
-  Open land with scattered trees
-  Rough open land
-  Rough open land with scattered trees



# Vegetation

## White: Open Forest

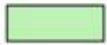

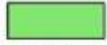



 Forest: easy running

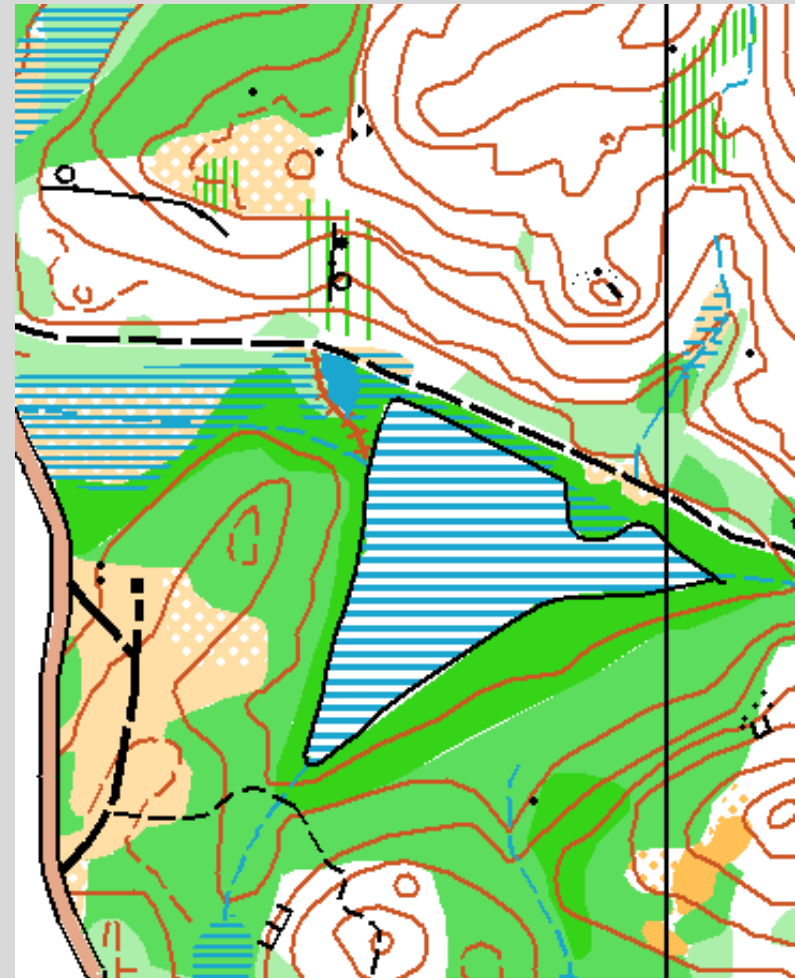


# Vegetation

Green: Thick Vegetation















Best to avoid

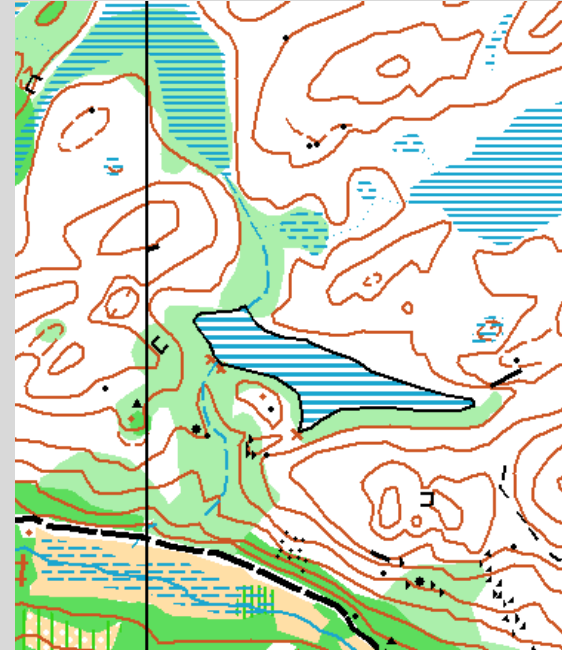
|   |   |
|---|---|
|  | Forest: slow running                          |
|  | Undergrowth: slow running                     |
|  | Forest: difficult to run                      |
|  | Undergrowth: difficult to run                 |
|  | Vegetation: very difficult to run, impassable |
|  | Forest runnable in one direction              |



# Blue: Water Features



























## Water and marsh

-  Lake
-  Pond
-  Waterhole
-  Uncrossable river
-  Crossable watercourse
-  Crossable small watercourse
-  Minor water channel
-  Narrow marsh
-  Uncrossable marsh
-  Marsh
-  Indistinct marsh
-  Well
-  Spring
-  Special water feature



# Black: Man-Made features & Rock

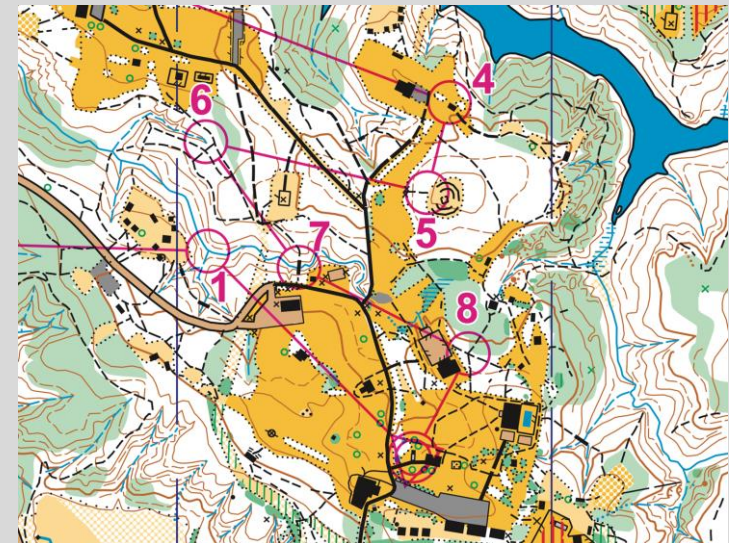
## Man-made features

|  |                               |
|--|-------------------------------|
|    | Motorway                      |
|    | Major road                    |
|    | Minor road                    |
|    | Road                          |
|    | Vehicle track                 |
|    | Footpath                      |
|    | Small path                    |
|    | Less distinct small path      |
|    | Narrow ride                   |
|    | Visible path junction         |
|    | Indistinct junction           |
|    | Footbridge                    |
|    | Crossing point with bridge    |
|    | Crossing point without bridge |
|    | Railway                       |
|    | Power line                    |
|    | Major power line              |
|    | Tunnel                        |
|    | Stone wall                    |
|    | Ruined stone wall             |
|  | High stone wall               |
|  | Fence                         |
|  | Ruined fence                  |
|  | High fence                    |
|  | Crossing point                |
|  | Building                      |



## Rock and boulders

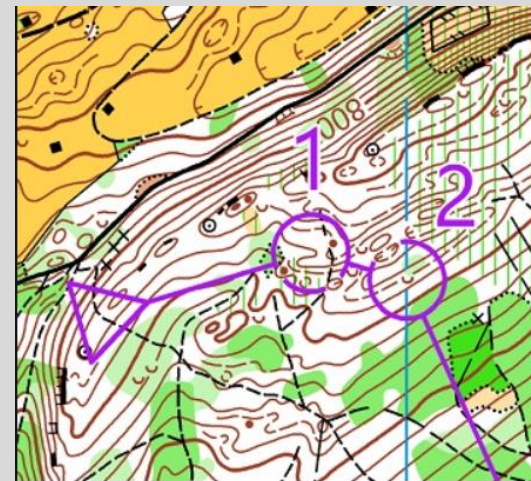
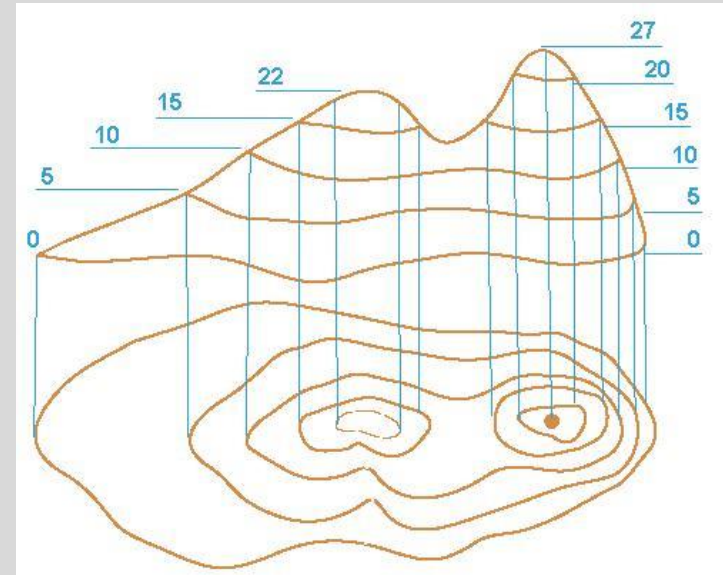
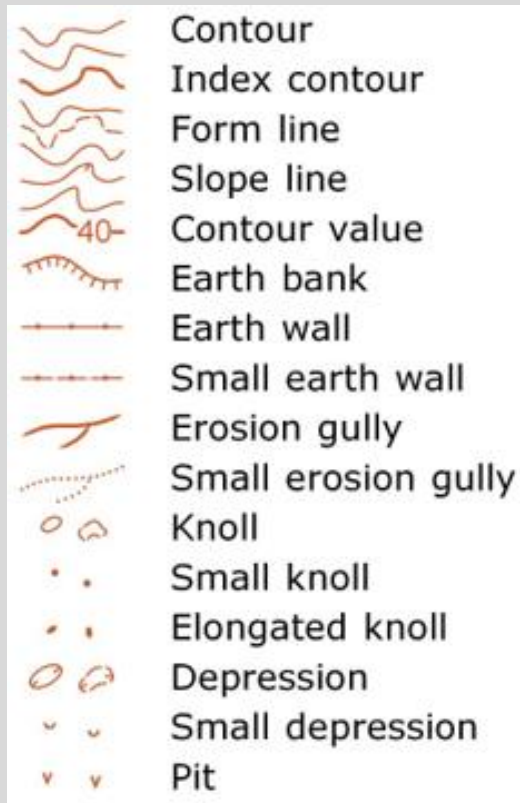
|   |                     |
|---|---------------------|
|    | Impassable cliff    |
|    | Rock pillars/cliffs |
|    | Passable rock face  |
|   | Rocky pit           |
|  | Cave                |
|  | Boulder             |
|  | Large boulder       |
|  | Boulder field       |
|  | Boulder cluster     |
|  | Stony ground        |
|  | Open sandy ground   |
|  | Bare rock           |





# Contours

## Brown: Shape of the Land



Contour lines represent the same elevation points connected in the landscape.

# Quick Quiz

**Puzzle Number: 1**

Original

Altered

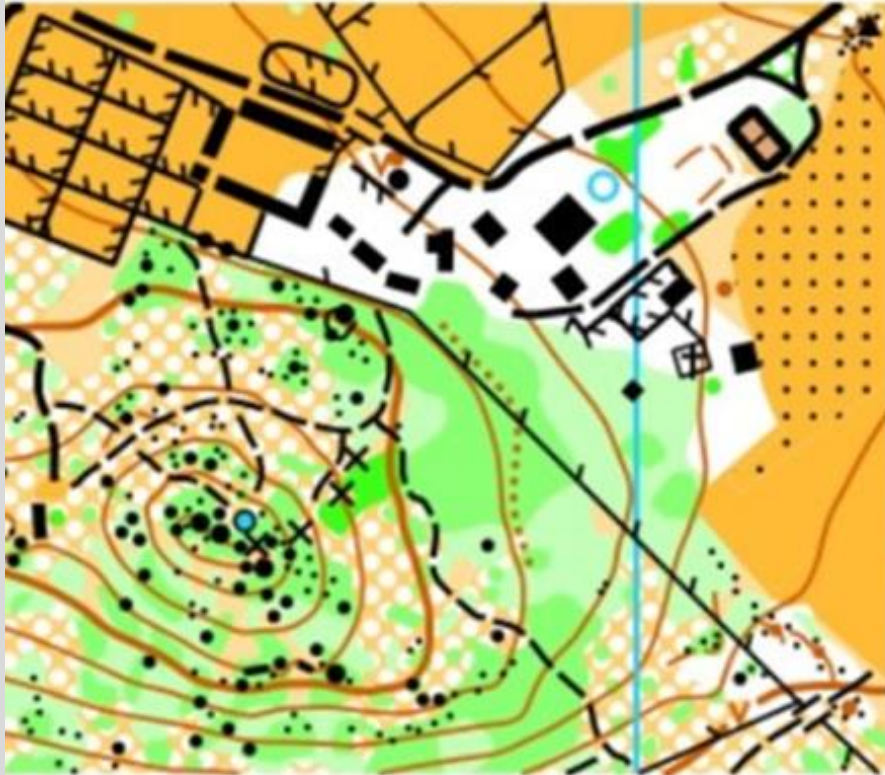


How many buildings are missing?

Answer:3

Puzzle Number: 1

Original



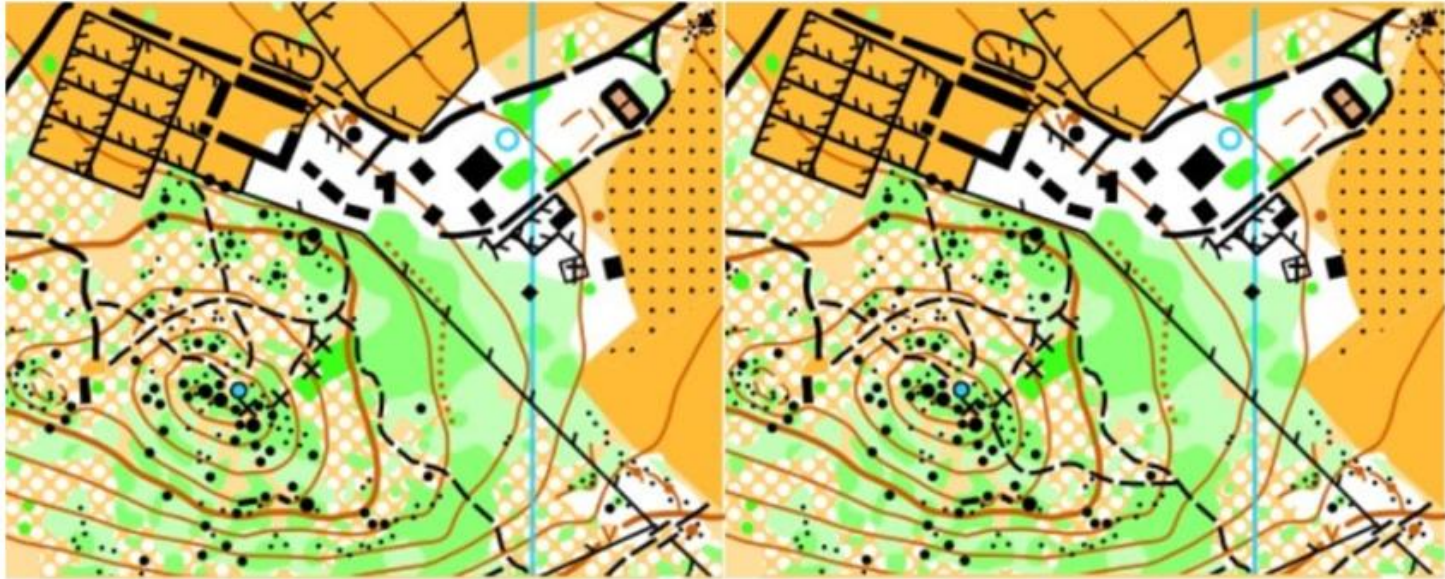
Altered



## Puzzle Number: 2

Original

Altered



What is new?

Building

Boulder

Path

Fence

# Answer: Path

Puzzle Number: 2

Original

Altered



What is new?

Building

Boulder

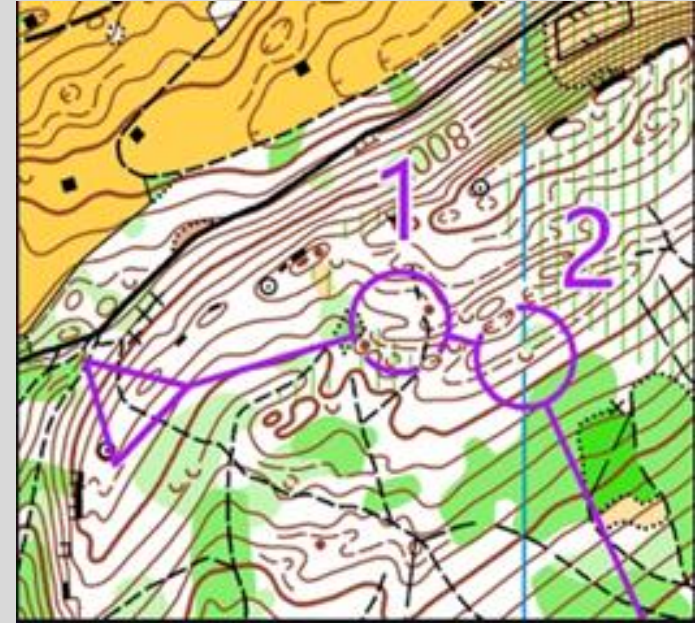
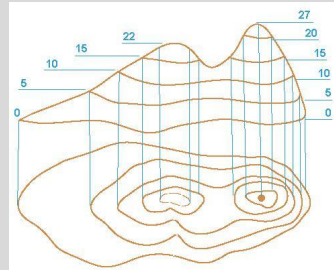
Path

Fence

# More about the contours

## Shape of the Land

|   |  |
|---|--|
|  | Contour, Form line<br>Courbe; de niveau          |
|  | Earthbank, Beaverdam<br>Talus, Barrage de castor |
|  | Knoll, Small knoll<br>Monticule                  |
|  | Depression, Small<br>Dépression, Petite          |



Contour lines represent the same elevation points connected in the landscape. Closer the contour lines are steeper the hill is.

Video:

1. [Topo Map: https://www.youtube.com/watch?v=4i\\_6eToM3X8](https://www.youtube.com/watch?v=4i_6eToM3X8)

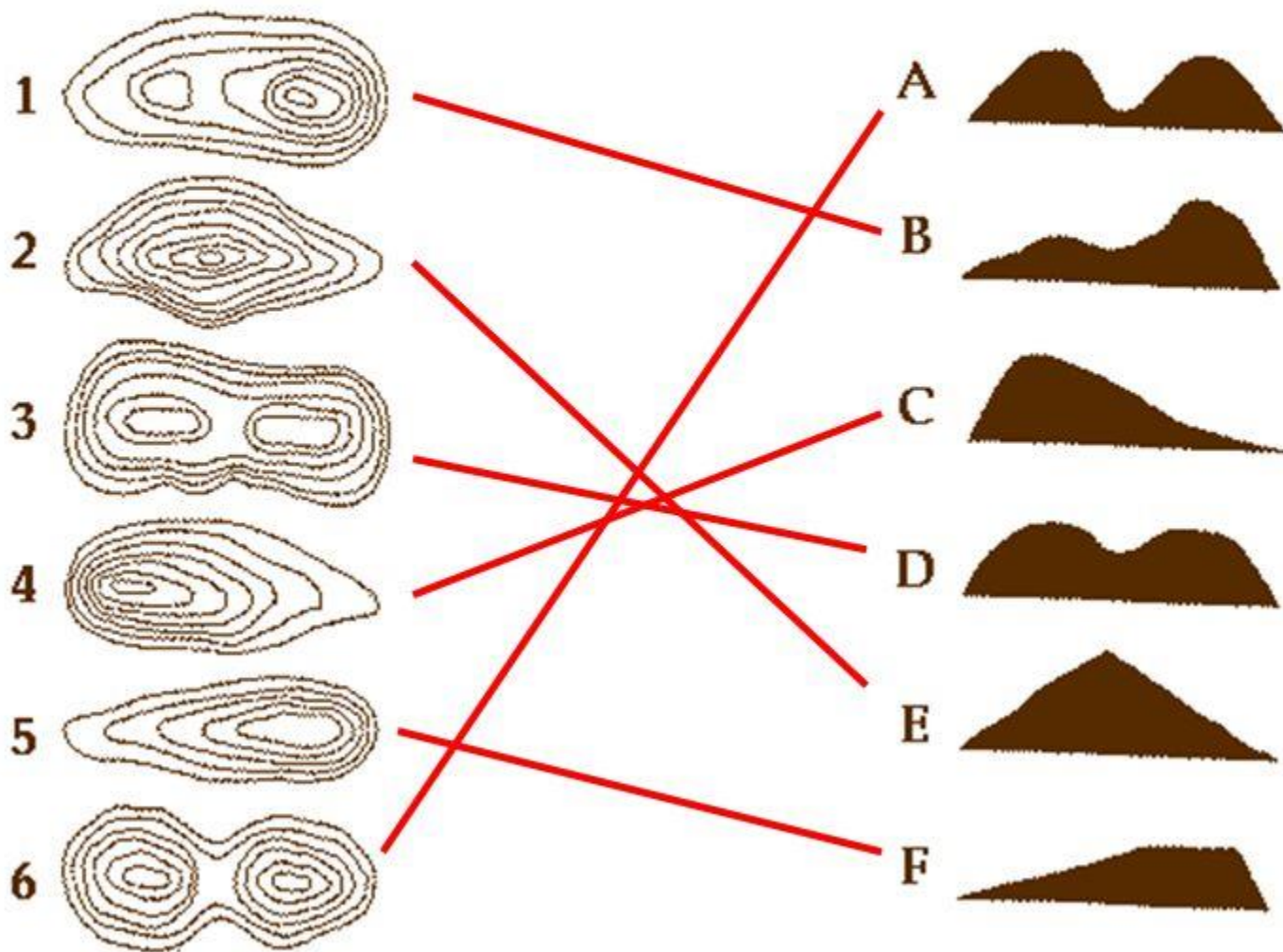
# Contours

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Match each contour map with the correct relief model

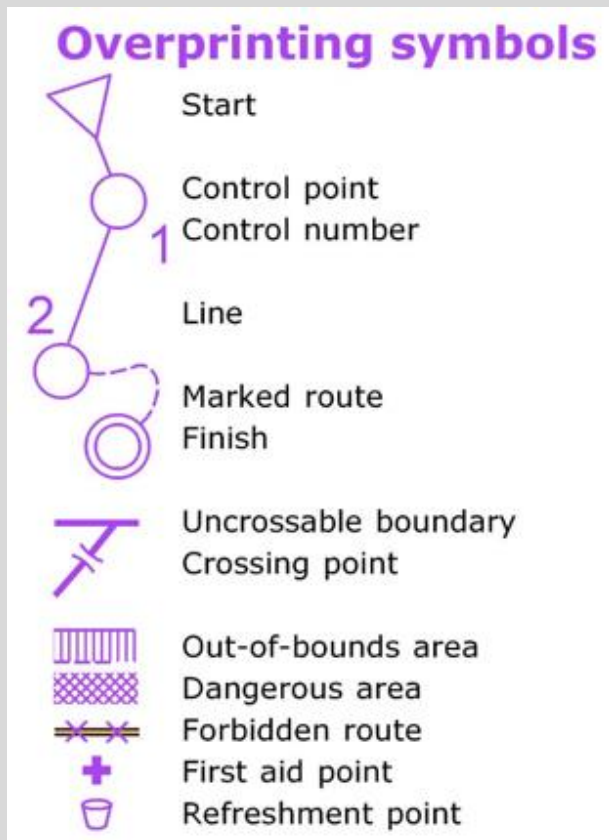


# Match the Contour Lines to the Topographic Profile

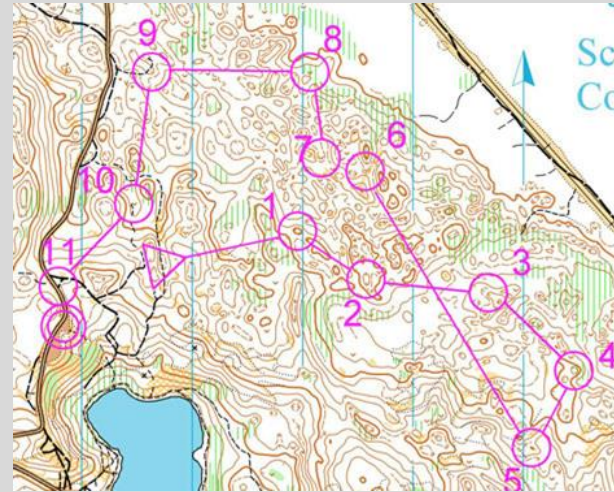




# Orienteering course



- **Course: point to point** course, you must follow the order to visit the controls
- Each age group and level has different difficulty of navigation and distance



- **Score O:** you can visit the controls in any order and collect the points. Usually there is a time limit.



# Basic orienteering skills



# Orienting the Map

1. Ensure North on your map matches North on your compass.
1. Line up the map to match the features you see.

We will learn this outdoors!



# Folding/Thumbing the Map

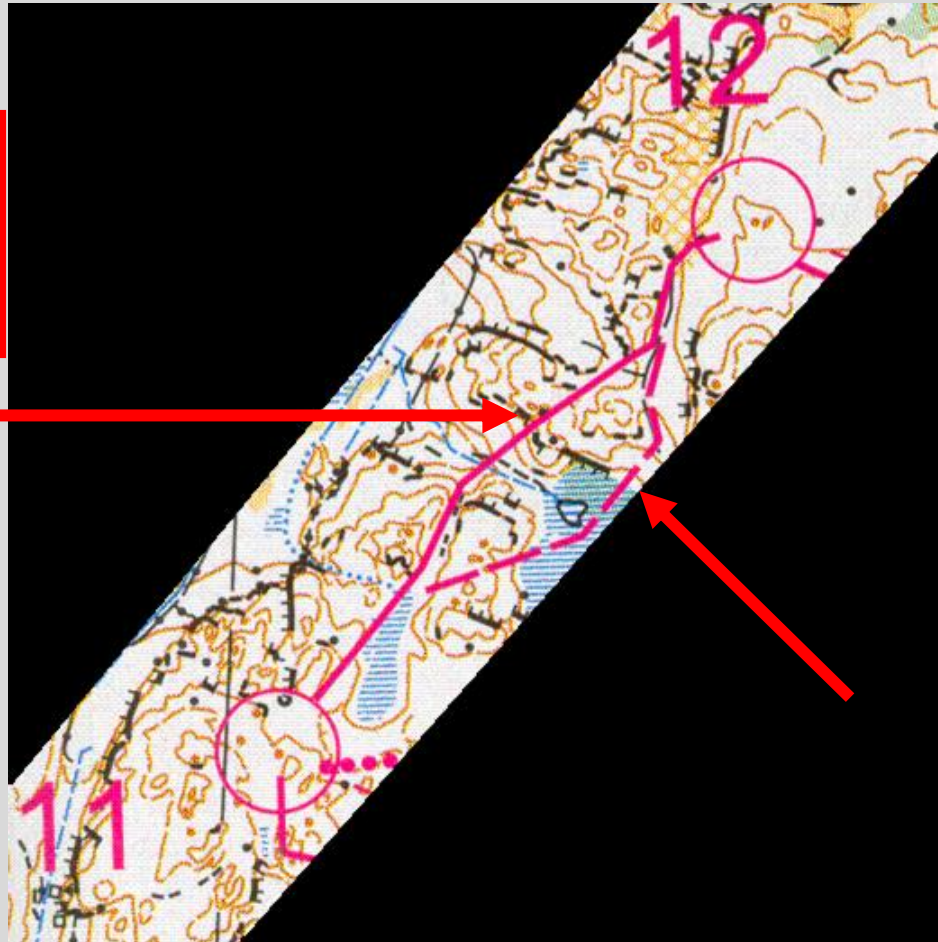
- Fold the map parallel to the direction of travel.
- Move your thumb as your position changes.



# Route Choice

The route from one control to the next is up to the orienteer.

Run over  
the hills...



Or  
through  
the  
marsh !

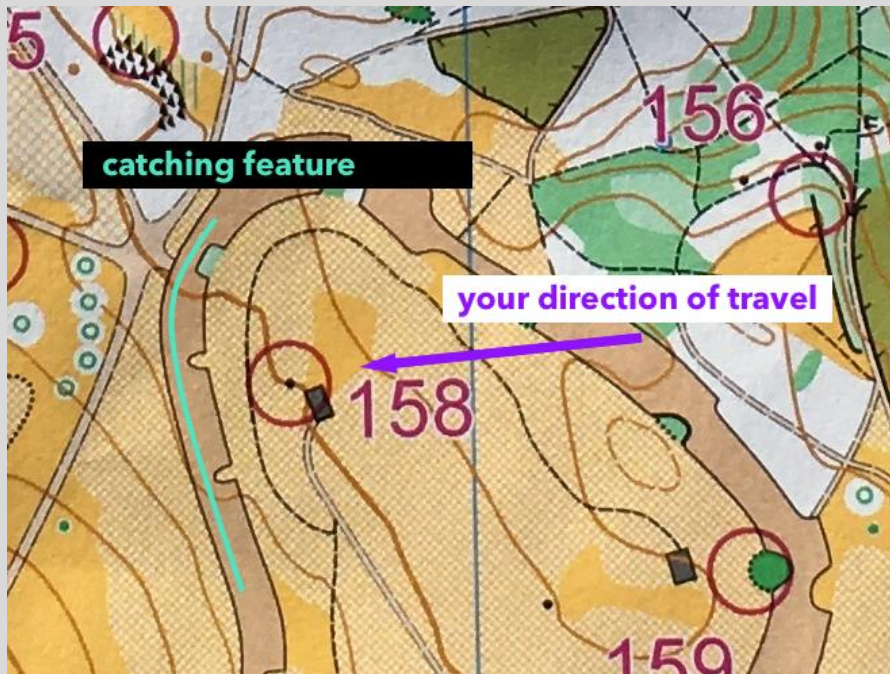
# Using “handrails”: Linear Features



Using straight line features to get to where you want to go . It will aid you in navigation:

- Path
- Fence line
- Power line
- Streams or
- Vegetation boundary

# Catching features



- A **Big** feature behind your control which indicates that you might have missed it

# Recap : Basic Map Reading

- Always keep the map oriented and plan ahead for your next control
- Always stay in contact with the map.
- Constantly take note of features on the map, and make sure you can identify them in the landscape around you, and vice-versa.
- Navigate along linear features such as trails, streams, fences, and vegetation boundaries.



## Quiz:

What is your route from start ( triangle ) to finish ( double circle) will look like? You are going .....

**Puzzle Number: 1**



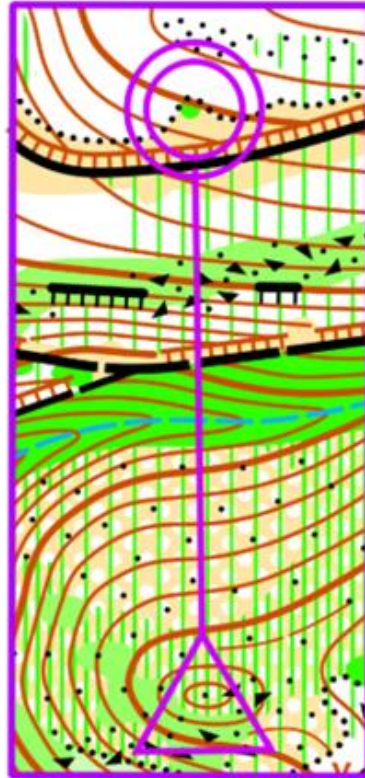
Up

Down

Up then Down

Down then Up

## Puzzle Number: 5

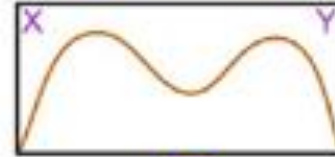
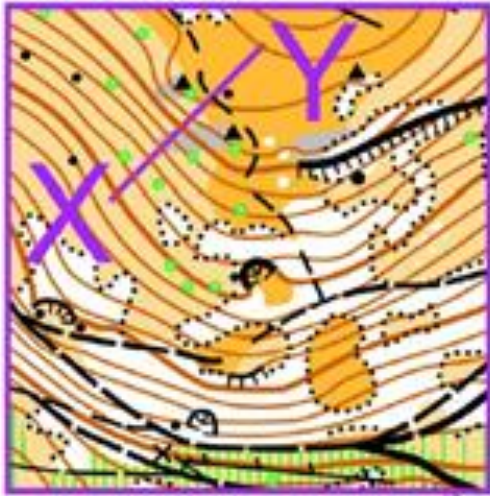


Up

Down

Up then Down

Down then Up



A

B

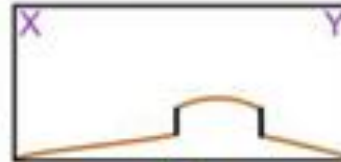
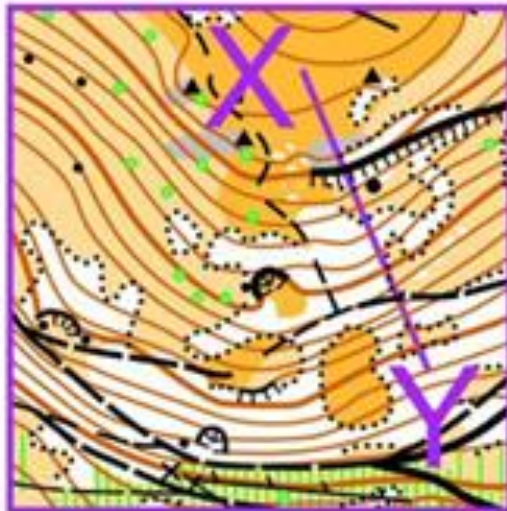
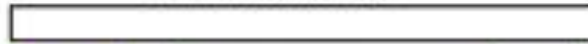


C

D

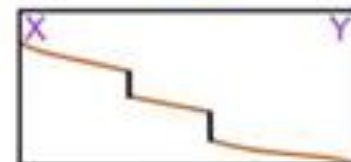
- A
- B
- C
- D

Puzzle Number: 3



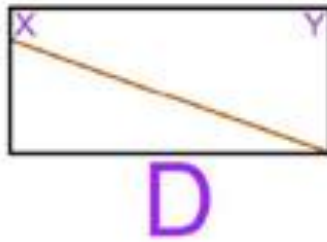
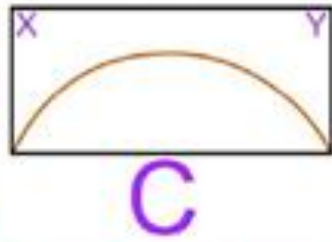
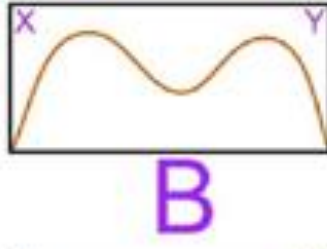
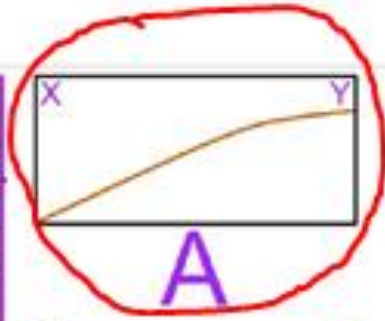
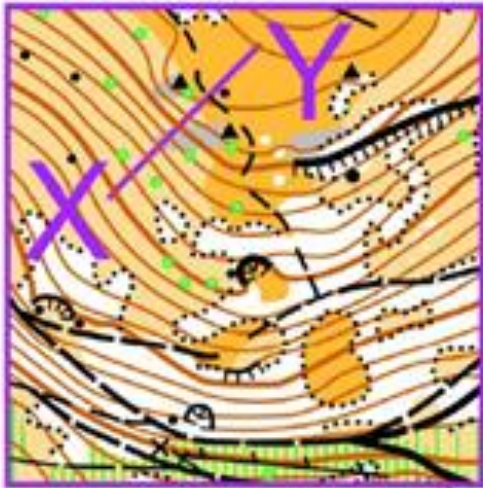
A

B



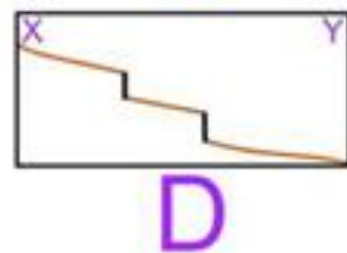
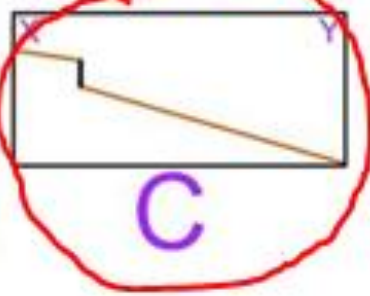
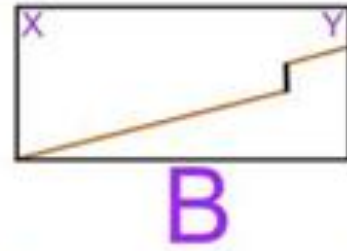
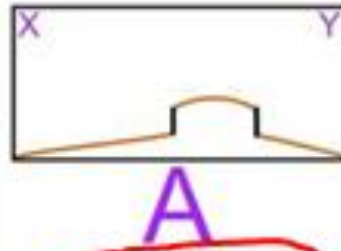
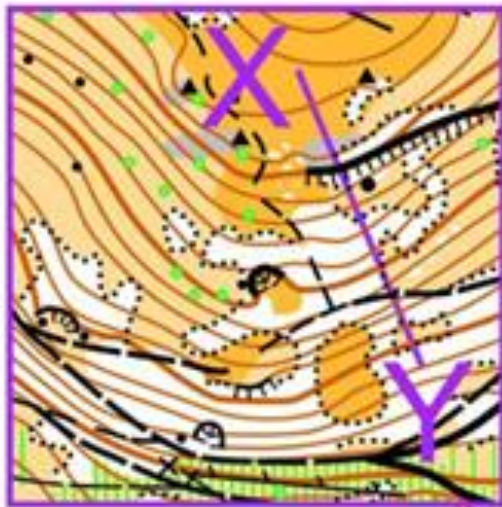
C

D



- A
- B
- C
- D

Puzzle Number: 3





Additional resources:

- ORIENTEERING  
SAFETY BROCHURE
- LIVING SMART WITH WILDLIFE  
BROCHURE
- AOA RISK MANAGMENT POLICY
- CONCUSSION BASICS
- SAFE SPORT ENVIROMENT

Visit our website for any safety related questions:

<https://www.orienteeringsalberta.ca/safety-in-orienteeing.html>

# Safety recommendations

## Safety rules of orienteering events

1. **Strictly observe all event specific rules, cautions and advice.**
2. **Carry a whistle. The emergency signal is three blasts.**
3. **You must abandon your course if you hear a distress whistle and must help participants in need.**
4. **Always return to registration at the end of the event and sign out!**

## WHAT TO DO IF YOU FEEL DISORIENTED

Stop!  
Stay calm and think



See if you can  
Track back to you  
last control or  
use safety bearing



If you're lost STAY  
in one place  
somewhere visible



Blow your  
whistle



**DON'T PANIC HELP IS COMING !**

## Safety recommendations while on a course

- Stop immediately if you become injured. Running 'through the pain' will only make your injury worse. Return to the start area and seek medical treatment for all injuries.
- Stop and relocate if uncertain of your location, (track back to the last point that you were certain about your location). Choose a safer route to return.
- **If you're lost or hurt stay still and blow the distress call (three whistle blows) until help arrives.**
- In case of an overdue person, the organizers will initiate a search. You can help by following the directions of the organizers.



## Things that you can control !

- Choose the activity based on your ability: newcomers should start with a beginners' course and progress gradually. Warm up thoroughly before orienteering.
- To avoid tripping and falling, look up from the map and familiarize yourself with the terrain before you start running. Adjust your running speed to terrain difficulty. Practise reading the map while running in terrain.
- Wear appropriate clothes to cover skin and consider wearing eye protection. Make sure your shoes are comfortable and give good support.
- Adjust to weather conditions by dressing suitably for the temperature and weather. Drink plenty of water. In case of overheating find shade and stop and rest; cool your body with wet clothes.
- Exercise regularly to keep yourself in adequate physical condition for your activity.

# Safety recommendations



## Things that you can't control but can be prepared for !

- **In case of sudden bad weather (stormy weather) return to start if it is safe to do so.**
- **In case of heavy rain stay above river beds**, dry rock beds and steep hills to avoid flash floods or mud slides.
- **In case of lightning** avoid high places and large open spaces. If a thunderstorm happens, it is best to head to shelter (e.g. your car or building). If that is not possible, find low ground, (e.g. find a depression, crouch down, body tucked in a ball. Avoid lone trees and rocky outcrops or ledges



- **In wildfire situation:** try to leave the area moving away from the fire. Choose a downhill route (but stay out of canyons) to avoid smoke and be aware of wind direction which may blow the fire and smoke towards you. If fire is coming near, try to find a wet marsh or lake and stay in the water. If no water body is nearby go to an area clear of vegetation (or already burnt down), a ditch or depression, lie face down, and cover your body with dirt.



## Safety rules & recommendations



# Safety recommendations

## How to Avoid and Manage Encounters

### Avoid Encounters

Do not approach or feed wildlife. This could lead to human injury and/or destruction of the animal.

Ways to avoid wildlife:

- Make lots of noise to alert animals of your presence (e.g. talk loudly, sing or shout);
- Travel in groups;
- Walk pets on leash;
- Be aware of your surroundings and recognize signs (tracks/scat) of wildlife;
- Respect area warnings and closures;
- Leave the area if you see or smell a dead animal; and
- Carry bear spray and know how to use it.

### Handling an Encounter

When handled calmly and appropriately, most wildlife encounters end without injury to humans or wildlife.

- **STOP—gather your group together!**
- **NEVER RUN!**
- If the animal is unaware of your presence, quietly go back the way you came.
- If the animal is aware of your presence, act non-threatening—talk calmly and back away slowly.
- Prepare to use your bear spray.

### In a defensive encounter a bear may feel threatened by your presence if you:

1. Are too close to the bear or its cubs;
2. Are too close to its food (e.g. a carcass, berry patch); or
3. Surprised the bear (it didn't hear you coming).

Be non-threatening—stay calm and back away slowly.

- **NEVER RUN!**
- If the bear comes within range, use your bear spray!
- If the bear makes contact, **play dead**.
- If the attack continues it may have shifted to a non-defensive (i.e. predatory) attack. In this case fight back (see below).

**A non-defensive approach by a bear, cougar, coyote or wolf** is when the animal has time to leave, but still approaches you.

- **NEVER RUN!**
- Intimidate the animal—act big and loud.
- If wildlife comes within range, use your bear spray!
- If the animal makes contact, **fight back**. Attack the eyes and nose.

**For more information on handling encounters visit: [wildsmart.ca](http://wildsmart.ca)**



Penny Lawless

## Carry Bear Spray

- Bear spray has been proven to be effective at deterring attacks from black and grizzly bears.
- Bear spray may also be used to deter other animals such as elk, wolves, cougars and coyotes.
- Learn to use your bear spray and carry it with you when you recreate outdoors.
- Carry your bear spray in an easily accessible spot, preferably attached to your body by a holster or sling. Do not carry bear spray inside your backpack!
- Carry bear spray even in winter. Keep it warm to ensure its effectiveness.
- Check the expiry date on your bear spray. Replace after expiration or use.
- Take the time to read the directions on your bear spray, as different brands have different specifications.

**For more information watch the 'How to properly use bear spray' video at [wildsmart.ca/bearspray](http://wildsmart.ca/bearspray)**



Amar Athwal

## Pets

- Pets should be kept on leash and under your control everywhere in the Bow Valley except in designated dog off leash areas.
- It is not uncommon for off leash pets to come into conflict with wildlife.



# Relocating - staying safe

If you are disoriented

- Stop!!!!
- Orient the map to the North
- Try to match the features on the map to the terrain around you.
- Try to determine where you could you have gone since your **last known location**.
- **Return to the last place of known location** or bail out to a linear feature ( road , power line, stream et) which takes you back safe.

## WHAT TO DO IF YOU FEEL DISORIENTED

Stop!  
Stay calm and  
think



See if you can  
Track back to you  
last control or  
use safety  
bearing



If you're lost **STAY**  
in one place  
somewhere visible



Blow your  
whistle



**DON'T PANIC HELP IS COMING !**

# Why orienteer?



# Enjoy the outdoors

# Challenge yourself physically and mentally



# Gain navigational skills



# Suitable for all ages

## Alone or in a group



# As competitive as you want



# Where can you try it?

- Calgary Orienteering Club:FWOC
- SOGO Adventure Running
- Alberta Orienteering



Outreach info: [orienteeringalberta.ca](http://orienteeringalberta.ca)

Calgary Orienteering Club: [orienteeringcalgary.ca](http://orienteeringcalgary.ca)

Sogo Adventure Running: [sogoadventurerunning.com](http://sogoadventurerunning.com)

Social Media: @OrienteeringAB



adventure  
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# Contact

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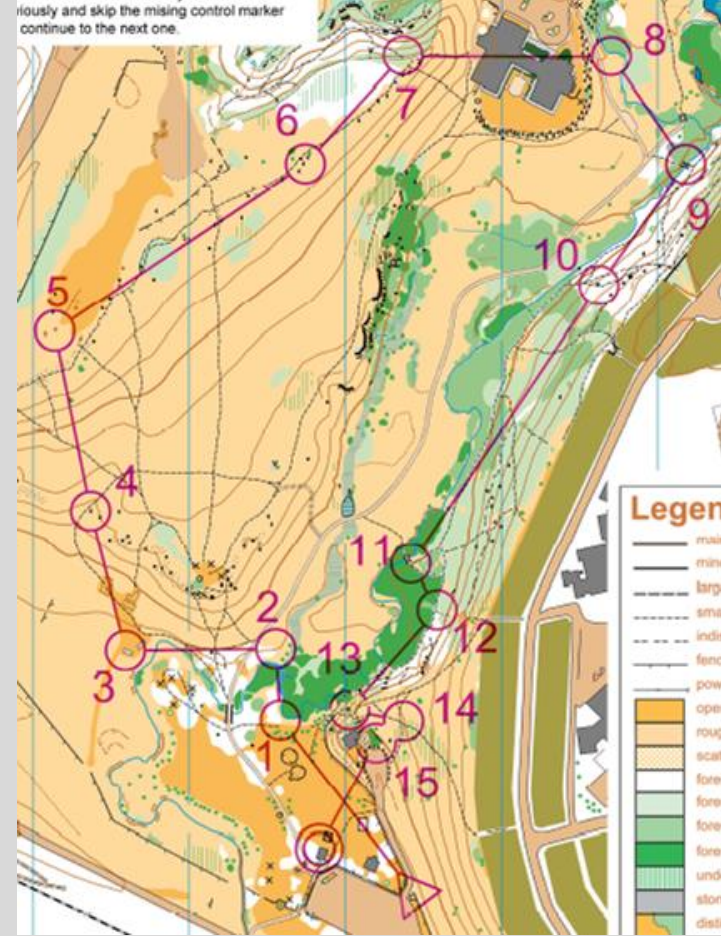
# Additional Wilderness Navigation



# Route planning on a map

Use any example from a previous course on an orienteering map.

1. Measure the distance on the course from start to control to control till finish in cm
2. Add up all the control leg distances in cm so you have the total distance in cm on the map
3. Calculate the real distance using the maps scale
4. You can calculate the elevation by counting the contour line you cross uphill and use the map scale to calculate it to meters



# Example calculation for distance

1. 1:10000 scale

the total measured distance on the map **27cm**

1 cm      10,000 cm

27 cm    x    cm

$27 \times 10,000 = 27,0000 \text{ cm}$

(convert **cm** to **m** is divide by 100)

~~27,0000~~ cm = 2700 m

# Calculate elevation

count each leg contour lines as you cross it going uphill.

(Do not calculate the downhill routes)

use the scale to count total elevation gain

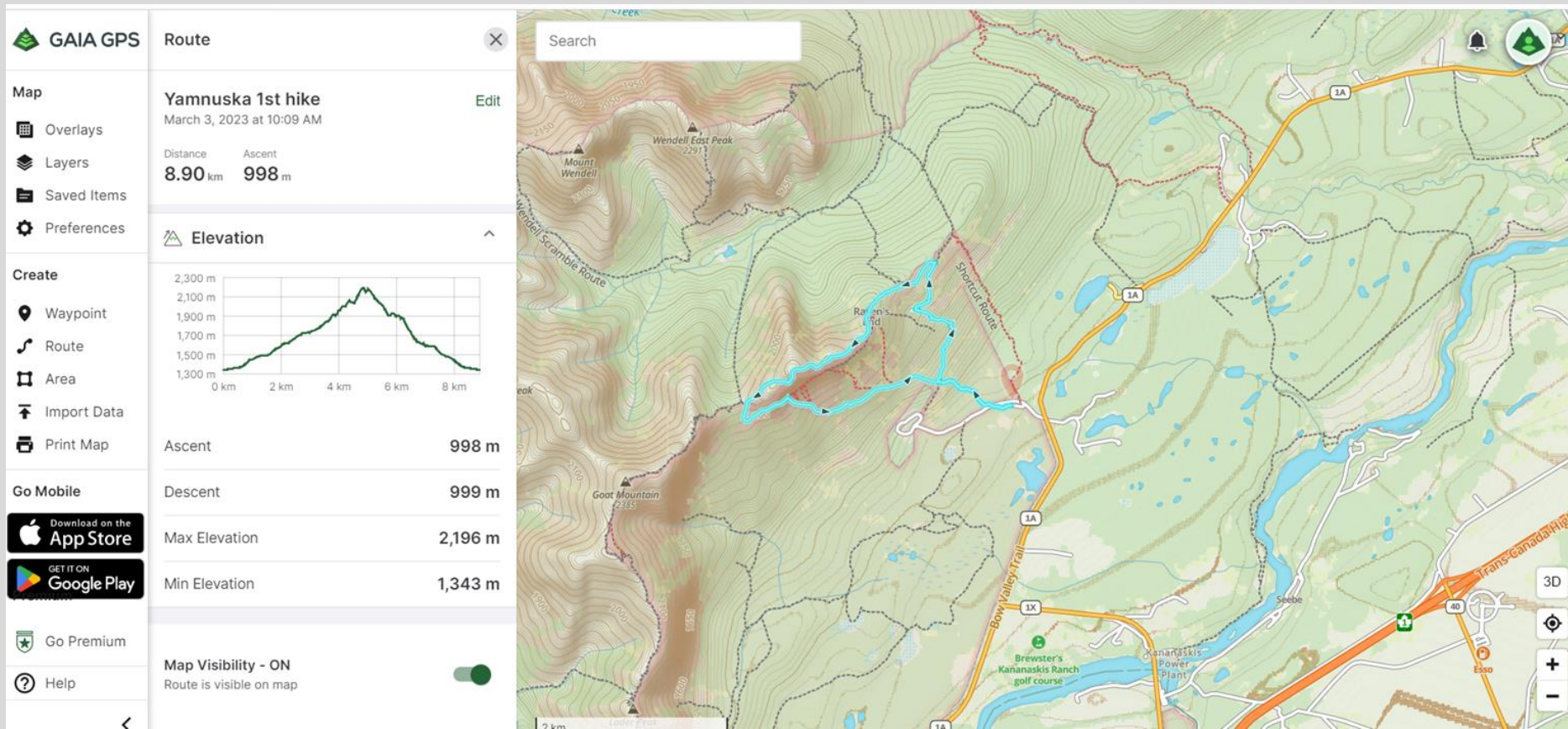
## **Contours 5m**

30 contours crossed

$5 \times 30 = 150\text{m}$  elevation climbed

# How to use Gaia GPS system for route planning

<https://www.gaiagps.com/map/?loc=12.2/-115.1184/51.1236&layer=usgs-topo>



# What to expect at a local club event?



- <https://www.youtube.com/watch?v=1rF5SSa29O8>