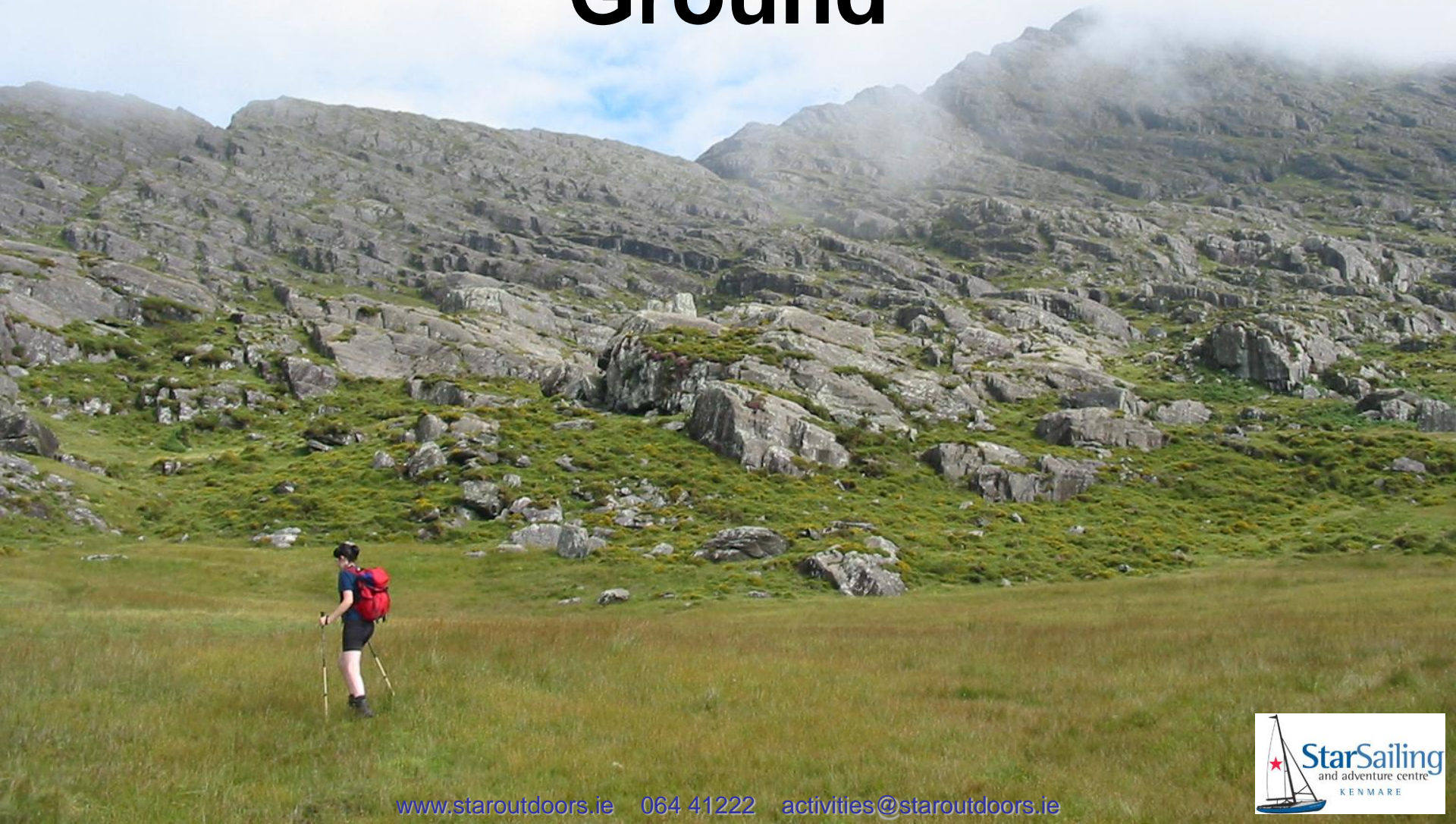


Measuring Distance on the Ground



Measuring Distance on the Ground

There are techniques we can use while navigating that will help us to determine how far we have walked, thereby allowing us to calculate how much further we have to go and how long that will take us.

There are two methods to help us do this

- Over short distances – up to 500m – we usually use PACING
- Over longer distances – Over 1km – we usually use TIMING

Between 500m and 1km we use both

With both methods the first thing to do is measure the distance on the map

2mm = 100m on a 1:50000 map

Pacing

You need to work out how many paces it takes you to do a measured 100m (An average person is about 50 - 70)

To keep numbers small, we only count one foot (only count when your left foot hits the ground). This is called double pacing

This is your pacing for 100m on flat ground
This will change for going uphill, going downhill and with different terrain

Don't convert your total distance to total paces.
For a 400m distance that would give you $4 \times 60 = 240$ paces - you will likely lose count.

Instead count 100m blocks - Count up to 60 four times.



Timing – Naismiths Formula

The average walking speed is 5km per hour

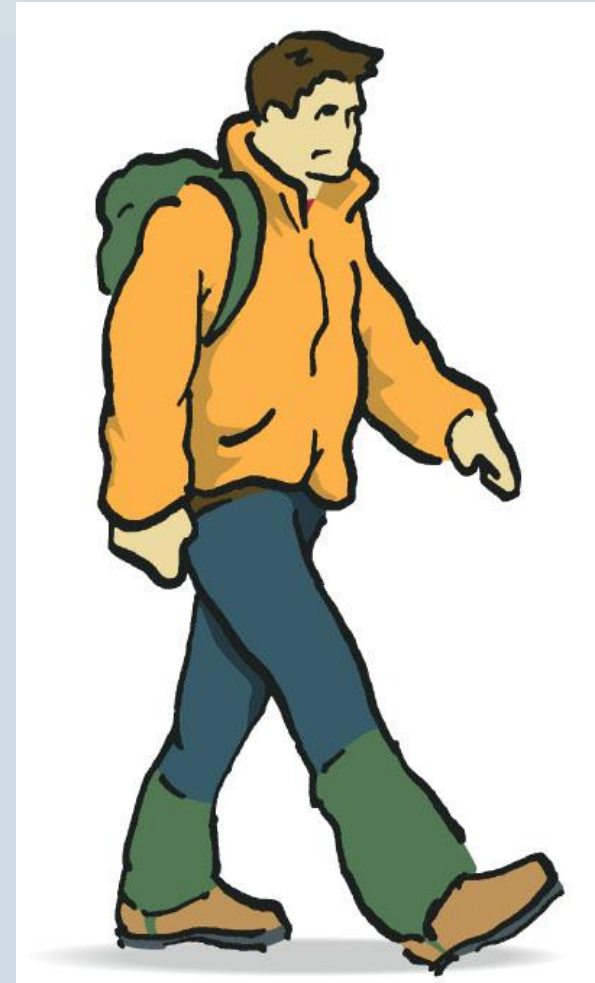
Plus an extra 30 minutes for every 300m climbed

Horizontal speed

Distance	Time
5km	1 hr
1 km	12 min
100m	1.2 min

Vertical Speed

Height	Time
300m	30 min
100m	10 min
10m	1 min
1 contour	1 min



Measuring Distance on the Ground

If we had to walk 750m and climb 200m, how long should this take?

Distance - 1.2 min per 100m $7.5 \times 1.2 = 9\text{min}$

Height - 1 min per 10m $20 \times 1 = 20\text{min}$

Total time - $9 + 20 = 29\text{ min}$

We don't always walk at 5km/hr

We can work out different times for different speeds

	3km/hr	4km/hr	5km/hr	6km/hr
100m	2min	1.5min	1.2min	1min
200m	4min	3min	2.4min	2min
300m	6min	4.5min	3.6min	3min
400m	8min	6min	4.8min	4min
500m	10min	7.5min	6min	5min
1km	20min	15min	12min	10min