GUIDANCE ON CREATING A SCALE MAP: NOTES TO ACCOMPANY SLIDES

Slide #1: *No text provided. Intro slide*

Slide #2: *No text provided. Intro slide*

Slide #3: **Overview of field work**

The purpose of this exercise is to integrate skills from the first three weeks of the program: these are note-taking, measuring and estimating, map-reading, compass use, and geo-locating. To illustrate how they all fit together you will be creating a scale map of a small area local to you.

To begin:

- Select a winding trail to survey.
- Either GPS the start location or estimate the distance from a prominent feature that I can geolocate on Google Earth. This locates your starting position

Slide #4:

You will be moving along the trail in "legs". A leg, for this exercise, is as far as you can see in a straight line, before the trail curves.

- From your starting position, record the front sight bearing to a feature on or beside the trail. Walk to the feature, counting paces or estimating distance. Record the distance from your start point to that feature.
- Determine your backbearing back to the point you just came from.
- Estimate trail width of the leg you just walked.

That completes Leg 1

Now shoot a frontsight bearing farther down the trail for Leg 2 and repeat the process.

Slide #5:

Somewhere during your survey identify and determine compass bearing and distance to two prominent features off of the trail. These can be anything – a dead tree, a dumped refrigerator, a crumbling building, a steep cliff face…

Record what the feature is and IMPORTANTLY: **record where you are measuring from** (e.g. station between legs 2 and 3)

Slide #6: **Data tables to record data**

These data tables are shown in the assignment in the online training. Copy them into your field notebook as this will remind you what you need to record for each leg and feature.

Slide #7: *No text provided. Slide self explanatory*

Slide #8: **Step 1: Determine scale**. *No text provided. Slide self explanatory*

Slide #9: *No text provided. Slide self explanatory*

Slide #10: **Step 2: Determine which way your page goes.** *No text provided. Slide self explanatory*

Slide #11: **Step 3: Make mark on page where you will start your map.** *No text provided. Slide self explanatory*

Slide #12: **Step 4: Prepare your compass.**

Line up the 0 bearing (which is also the 360 bearing) with the indicator at the front of the compass. If you align the compass edge along the page edge the compass is now showing North as straight up, at the top of the page. Therefore, the compass is aligned to the page. Both have the cardinal points (N,S,E,W) in the correct positions.

Note: For this exercise aligning the floating and base arrows is irrelevant. DO NOT worry about it or fret over lining them up. It is not necessary or required and will just make your life more difficult for this activity.

Once set you will NOT be changing the compass setting.

Slide #13: **Step 5: Place compass over starting point**.

Compass pivot point goes over start point;

Edge of compass aligned along edge of page

Make mark at bearing of first leg (48 degrees in my case)

Slide #14: **If you don't have a compass**. *No text provided. Intro slide*

Slide #15:

Using a protractor to determine angle from starting point instead of a compass

Slide #16:

Using the compass on your phone to determine angle from starting point instead of a compass

Slide #17: **Calculating leg lengths**. *No text provided. Intro slide*

Slide #18: *No text provided. Slide self explanatory*

Slide #19: *No text provided. Slide self explanatory*

Slide #20: **Connecting the dots to create a leg**. *No text provided. Slide self explanatory*

Slide #21: **And we do it again… and again… and again**. *No text provided. Slide self explanatory*

Slide #22: *No text provided. Slide self explanatory*

Slide #23: **Step 7: Inclusion of features**. *No text provided. Slide self explanatory*

Slide #24: *No text provided. Slide self explanatory*

Slide #25: **Final step**. *No text provided. Slide self explanatory*

Guidance on creating a scale map

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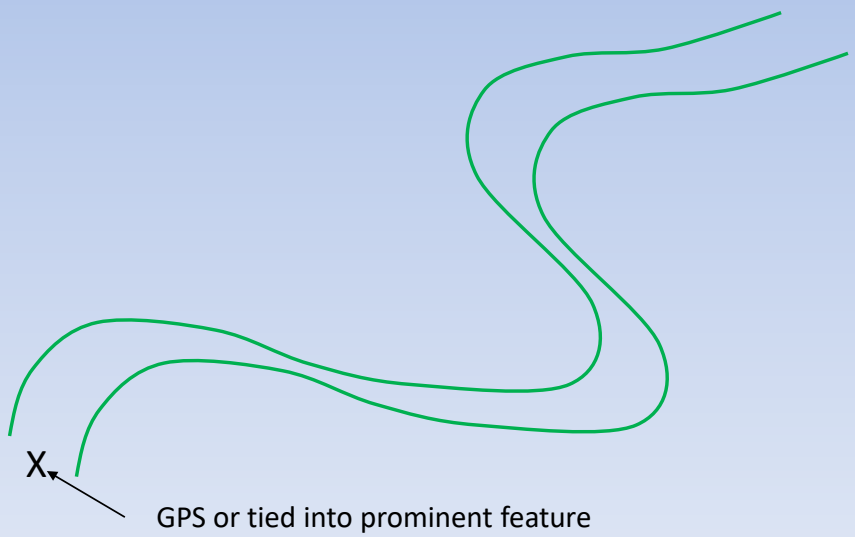
The field work

2

Overview of field work



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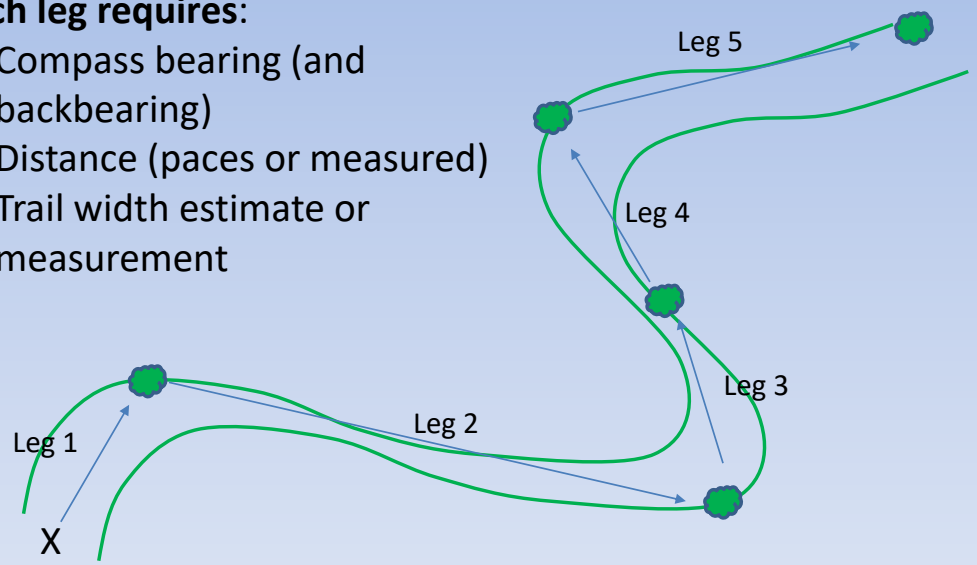
Each leg requires:

- Compass bearing (and backbearing)
- Distance (paces or measured)
- Trail width estimate or measurement



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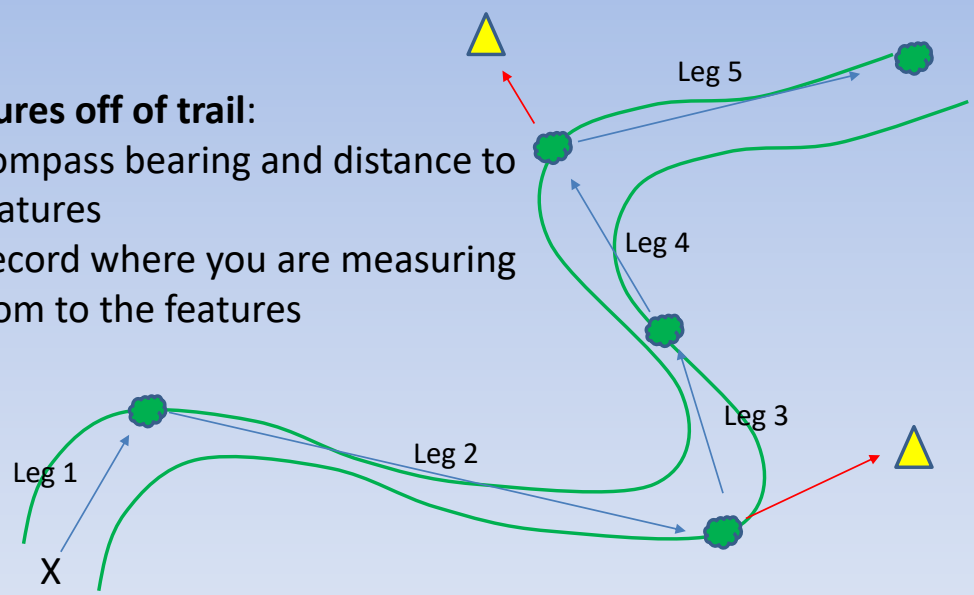
Features off of trail:

- Compass bearing and distance to features
- Record where you are measuring from to the features



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Data tables to record data (from assignment description)

Leg number	Front bearing	Back bearing	Length of leg (m)	Width of trail (m)
1				
2				
3				

Feature	Front bearing	Distance to feature (m)	Description of feature	Leg which feature is adjacent to
1				
2				

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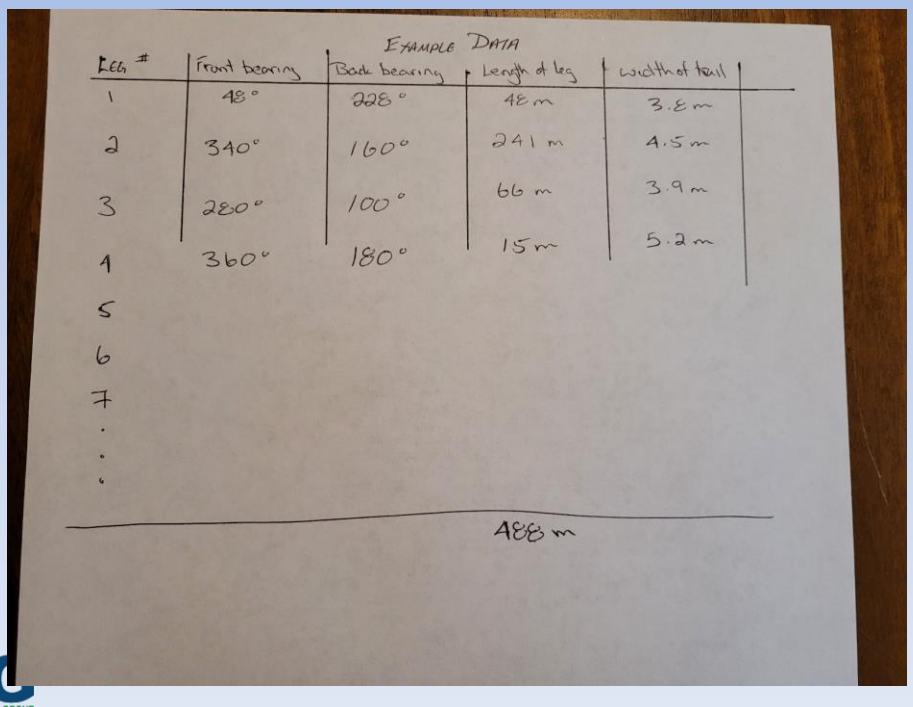
The Office Work

The Data



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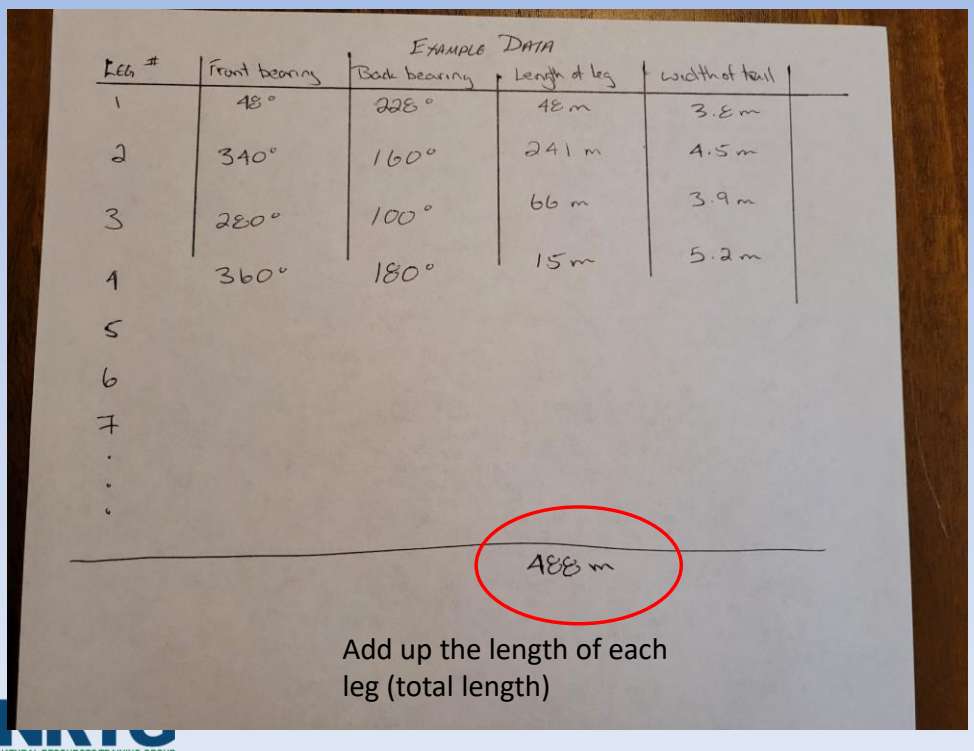
Step 1: Determine scale



Add up the length of each leg (total length)

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How to fit that length on your page

Standard page is 8 ½” X 11” (or 21.5 X 28 cm)

(1) Convert ground distance to map distance

Ground distance = 488 m = 48,800 cm

(2) Divide ground distance by longest edge of page

48,800 cm ÷ 28 cm = 1742.8 (that is, scale = 1:1742.8)

(3) Round up.

I choose 1:1,800

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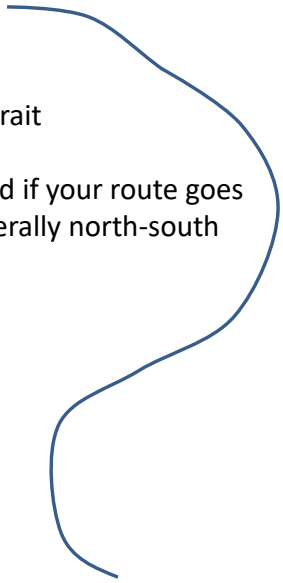
Step 2: Determine which way your page goes

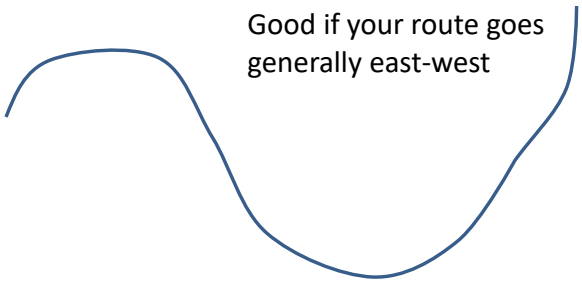
Portrait

Good if your route goes generally north-south



Landscape

Good if your route goes generally east-west



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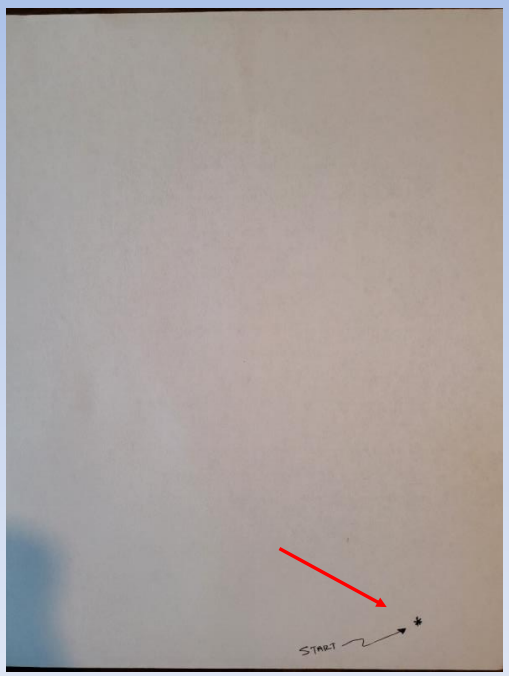
Step 3: Make mark on page where you will start your map

I look at my data, may even sketch my map, to determine the general route.

My data are generally north bearings and a little bit to the west. So I start at bottom of page and near right side as I will be progressing west (to the left)



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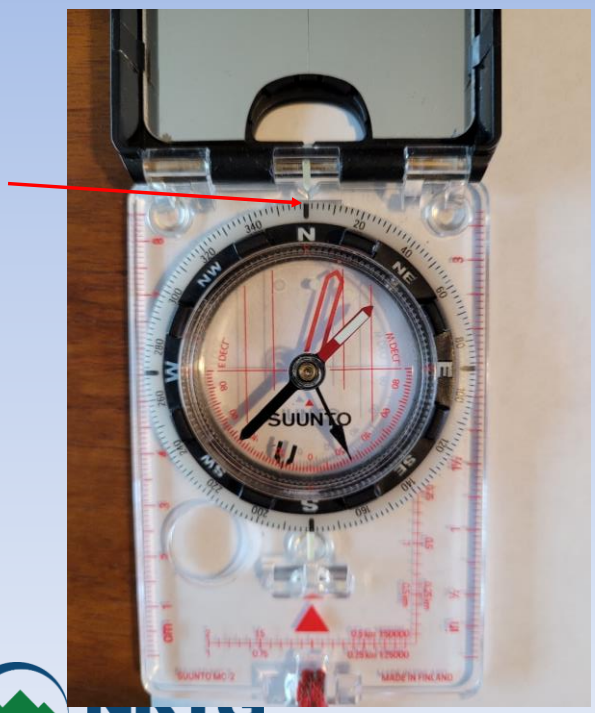
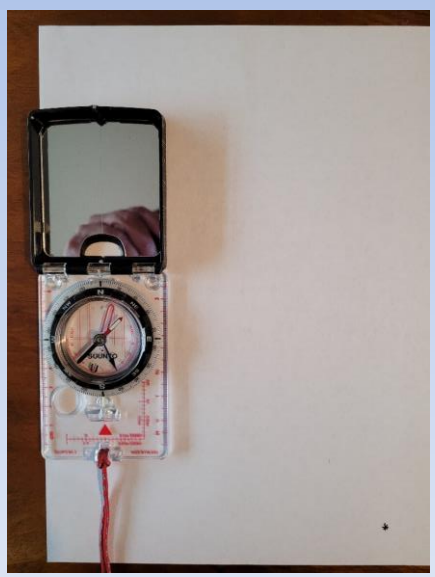
Step 4: prepare your compass





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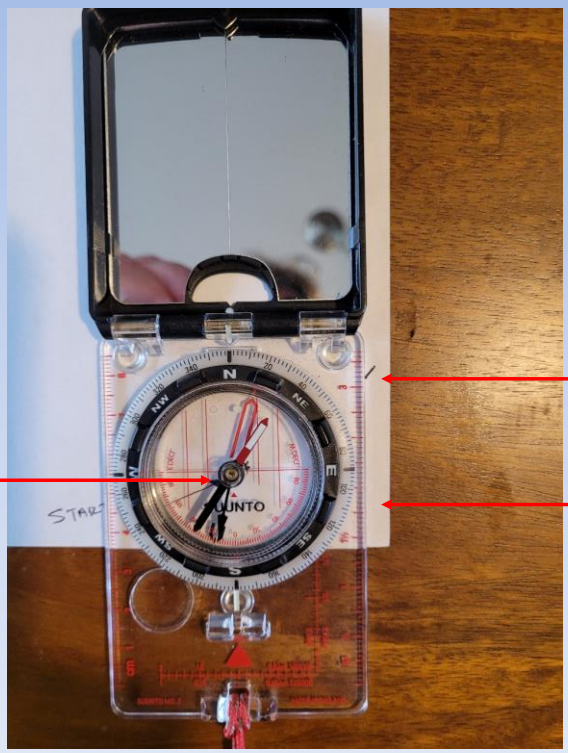
Step 5: Place compass over start point



Place compass pivot point over start point on page

Mark on paper bearing of first leg from field (48^{o} in this case)

Align compass edge with edge of page

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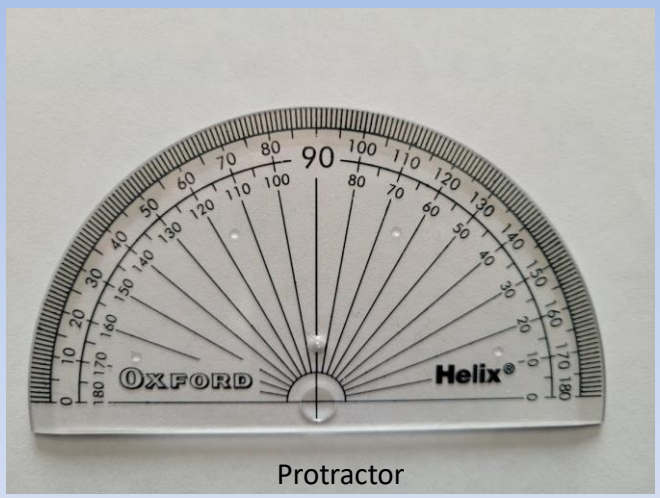
If don't have a compass



Protractor

Phone compass

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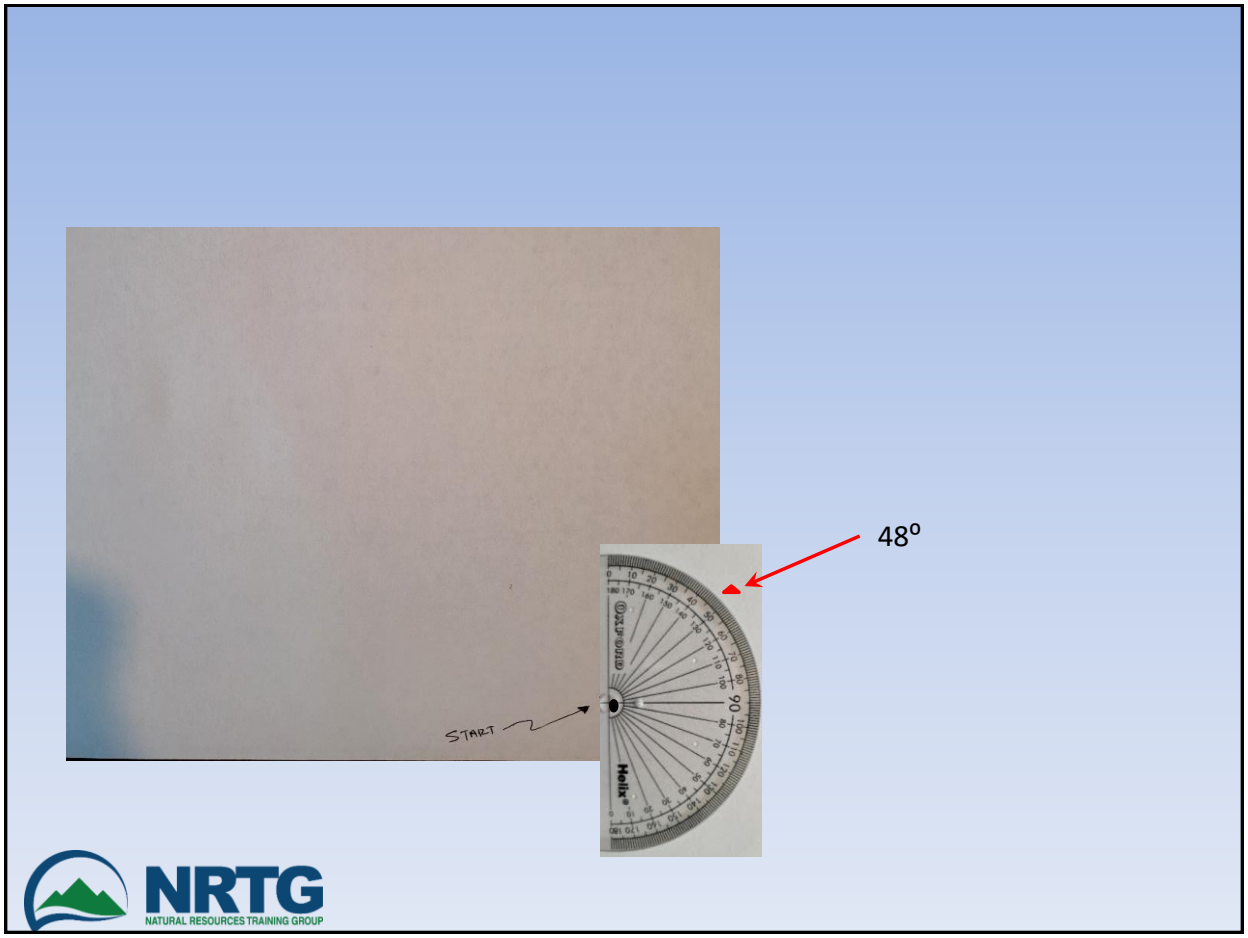

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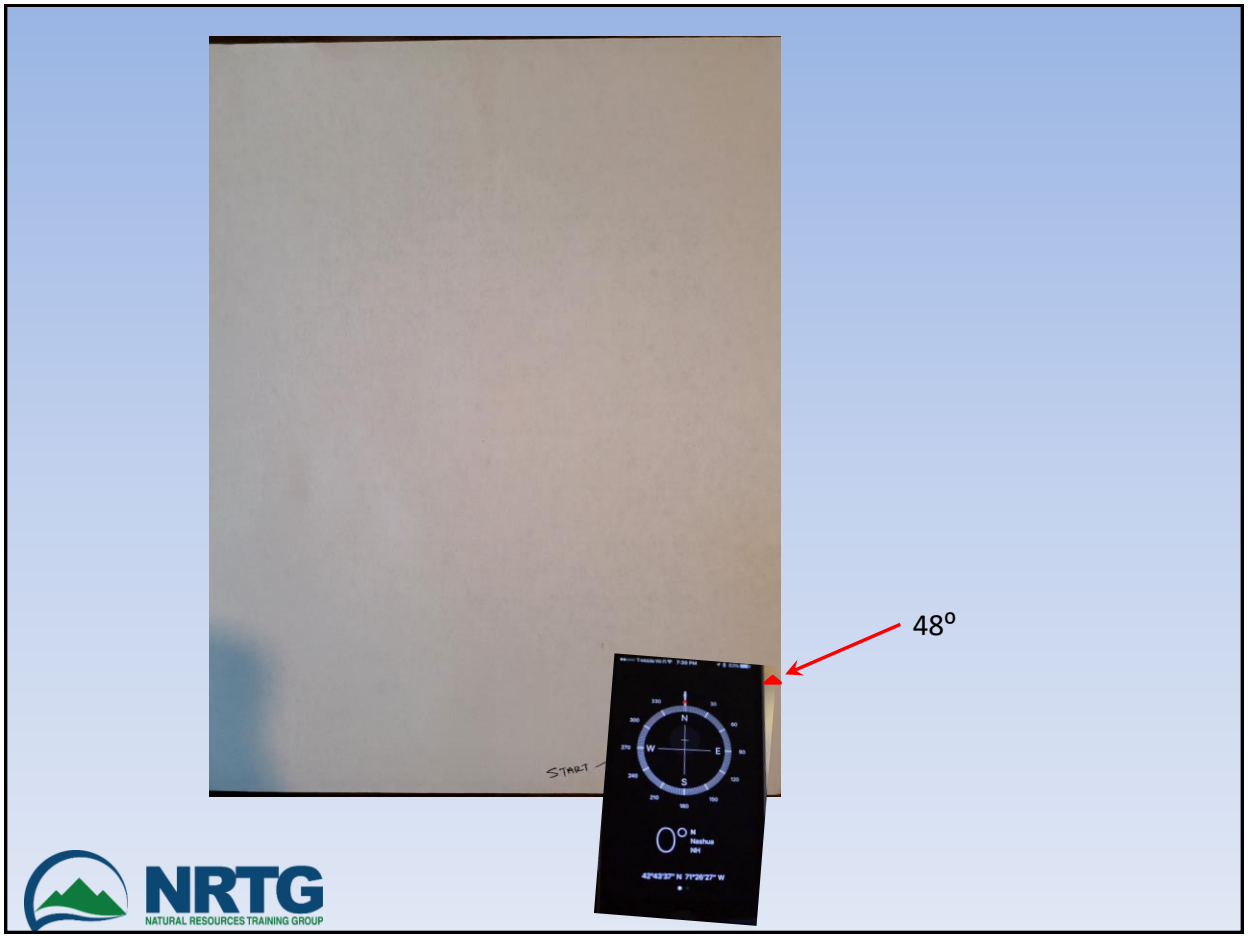
START
48°
N
E
S
W
0°
Nashua
NH
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Calculating leg lengths

- Now, to draw in the leg we are going to connect our start mark with the 48^{o} mark.
- But we need to know how long to draw our leg…

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- To convert ground distance to map distance, we :
  - Convert our ground distance to map units
  - Divide by the scale

This gives us the length of the line, to scale, on the map

Ground distance = 48 m
48 m = 4,800 cm

Length of line on map =
4,800 cm ÷ 1,800
2.7 cm

Our line on the map should be 2.7 cm

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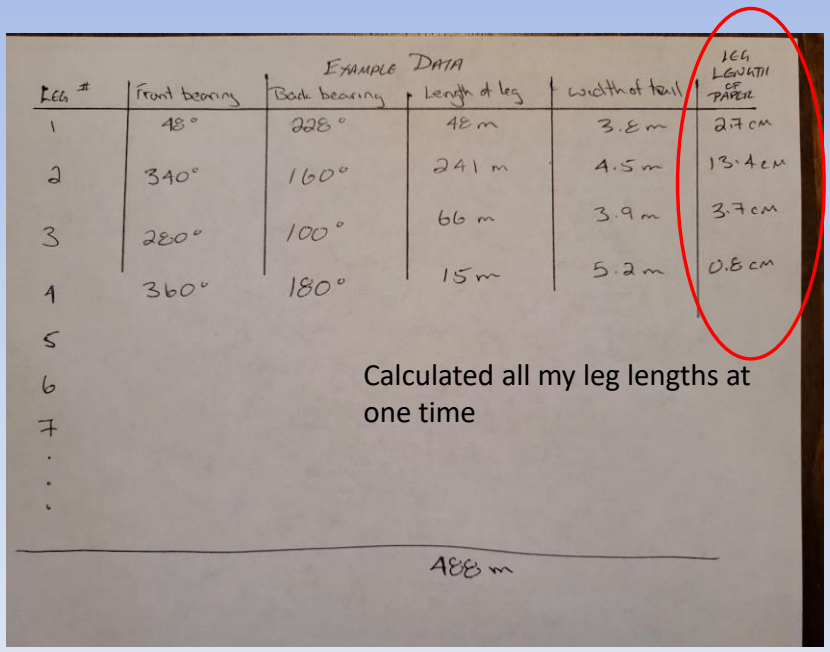

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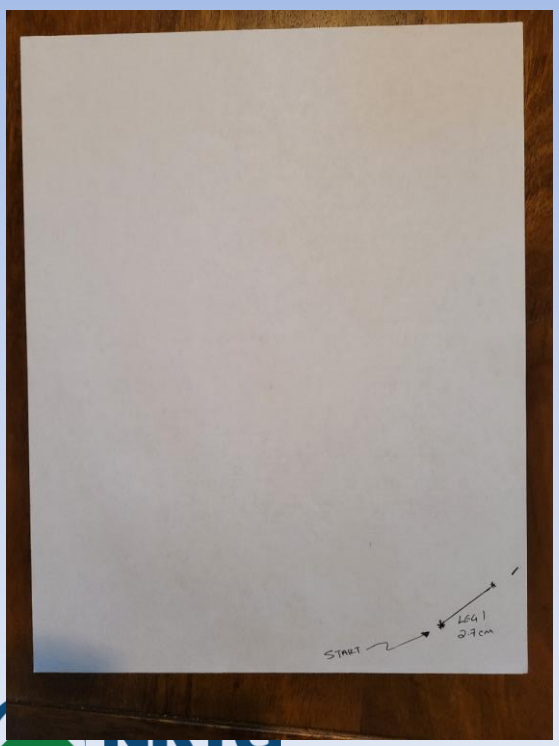
Step 6: Connecting the dots to create the leg



Then I just draw a line, 2.7 cm long, from my start point to the bearing mark that I put on the page.

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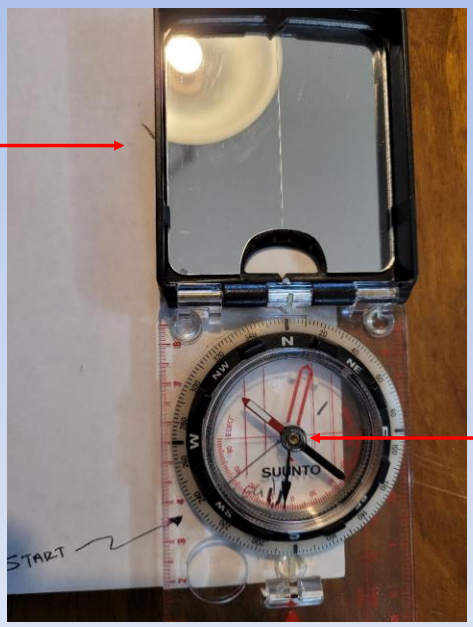
And we do it again… and again… and again

Bearing mark for Leg 2



Compass pivot over location form which you shot bearing for Leg 2

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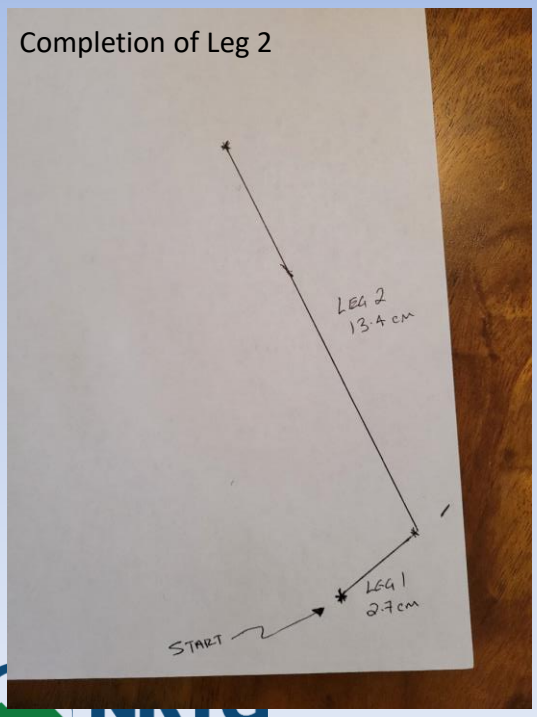
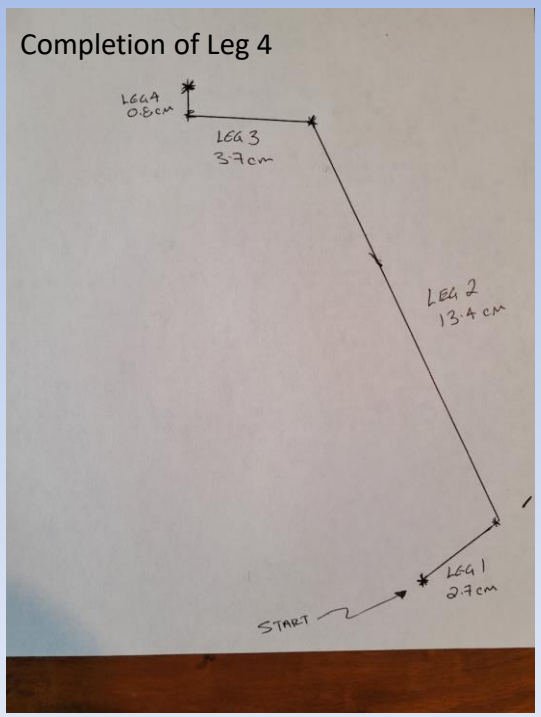
Completion of Leg 2



Completion of Leg 4



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Step 7: Inclusion of features

Feature	Front bearing	Distance to feature (m)	Description of feature	Leg which feature is adjacent to
1	290°	112 m	Wildife tree with fisher in it	2
2	85°	22 m	Old, rusting, 1950s truck	3

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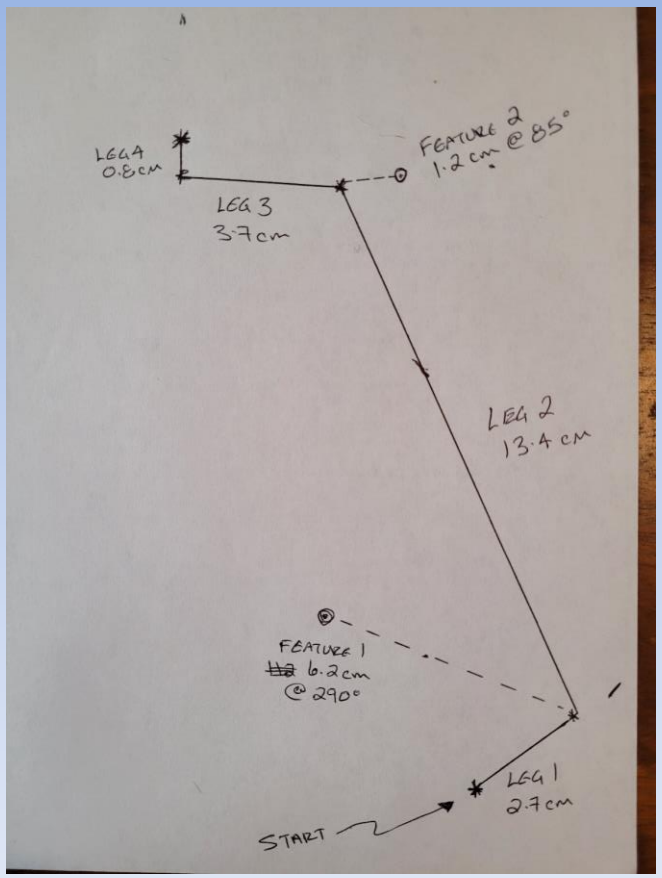
Use same approach:

1. Bearing from a mark on the map
2. Map distance calculated from ground distance and scale

We can include any and all features in a landscape with all features being accurately placed relative to each other.



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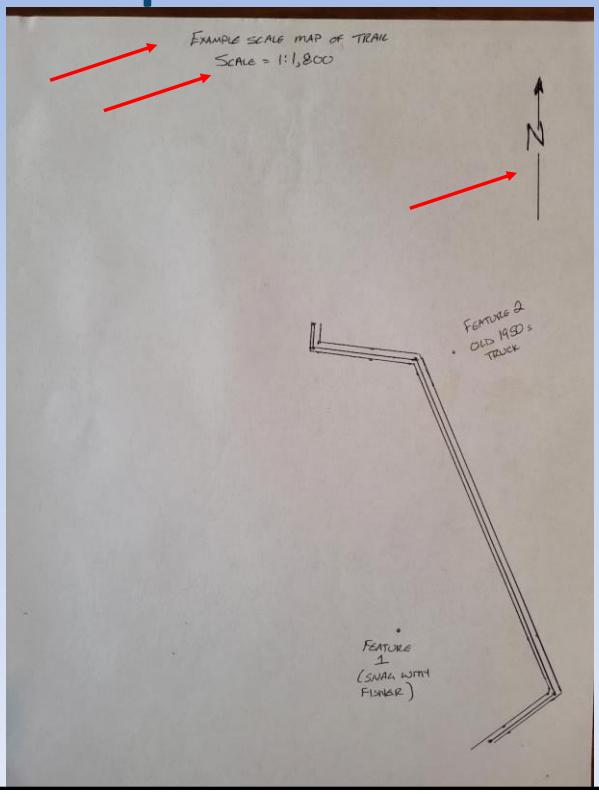
Final step

Trace the working copy of the map on a clean sheet of paper and make it look cleaner

Include eon every map:

- **Title**
- **Scale**
- **North Arrow**
- **Legend (if appropriate)**



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