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START

Measures, Shape & Space

Distances, Angles and Bearings

Maps and Map Scales

Coordinates

(Navigation)

Lesson 1 - Part 2

Session Intentions: Monday 5th Feb 2024

- To define positional vocabulary (appropriate wording) to describe position and direction. (E3.M20)
- To compare metric measurements of mm, cm, m and km. (E3.M15)
- To use angles when describing position and direction, and measure angles in degrees. (L1.M26)
- To recognise and make use of map scales. (L1.M21)
- To calculate values of angles, and describe a position with coordinates. (L2.M19)
- To describe a route from ReachOut to the Train Station.
- To describe a route to the summit of Ben Nevis using Ordnance Survey Maps.
- To describe a route from Lukla to Everest Base Camp using National Geographic Maps.

Intuitive

ADJECTIVE based on what one feels to be true even without conscious reasoning; instinctive.

From the Latin: intuit – contemplated.

OS Map Symbol Quiz – Work in Pairs (You can refer to your keys).

www.educationquizzes.com/gcse/geography/os-maps-symbols


04:59

Question: What are the most important features of Navigational instructions?

- Direction – Which way to go.
- Distance – How far to move in a certain direction.
- What else could be useful?
  - Position, Starting Point, Finishing Point.
  - Time taken - Duration

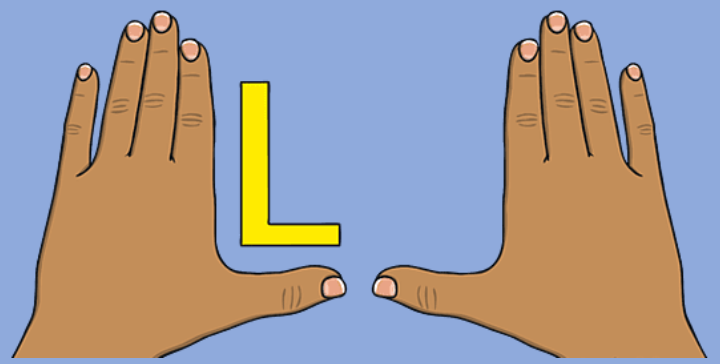
Recap of positional vocabulary

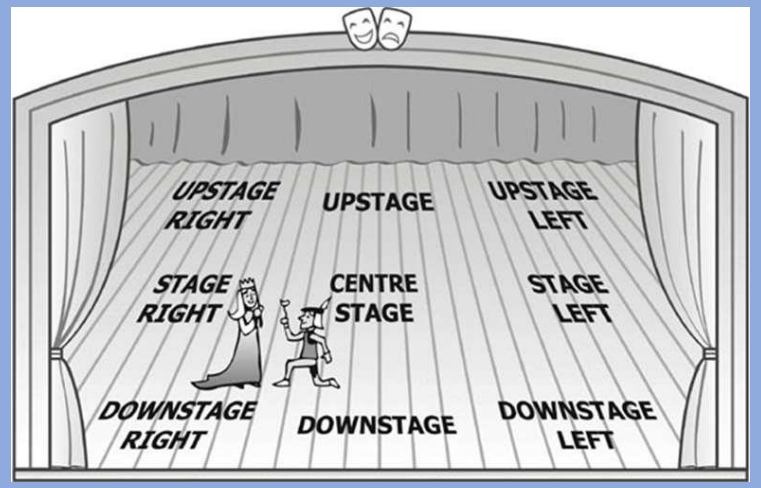
Which direction is this arrow pointing?

Right

Which direction is this arrow pointing?

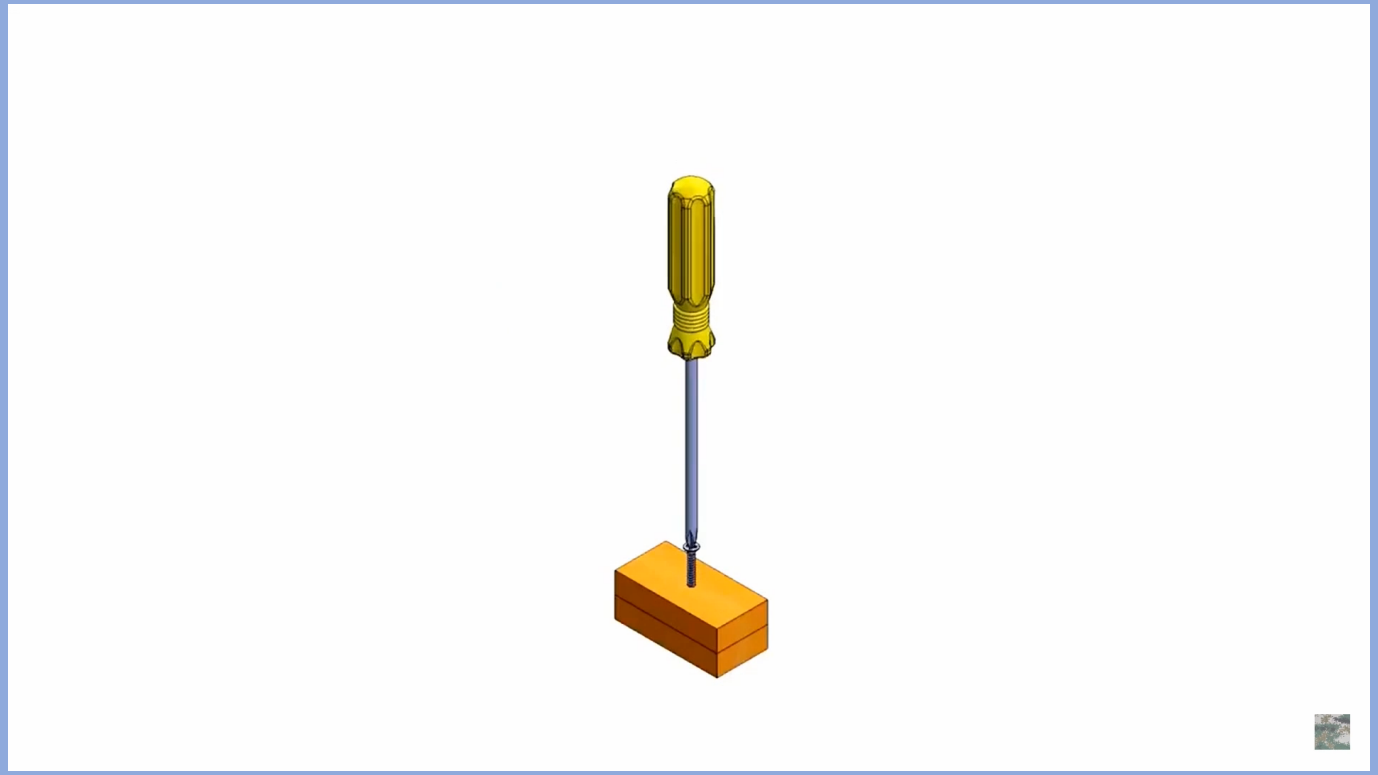
Left



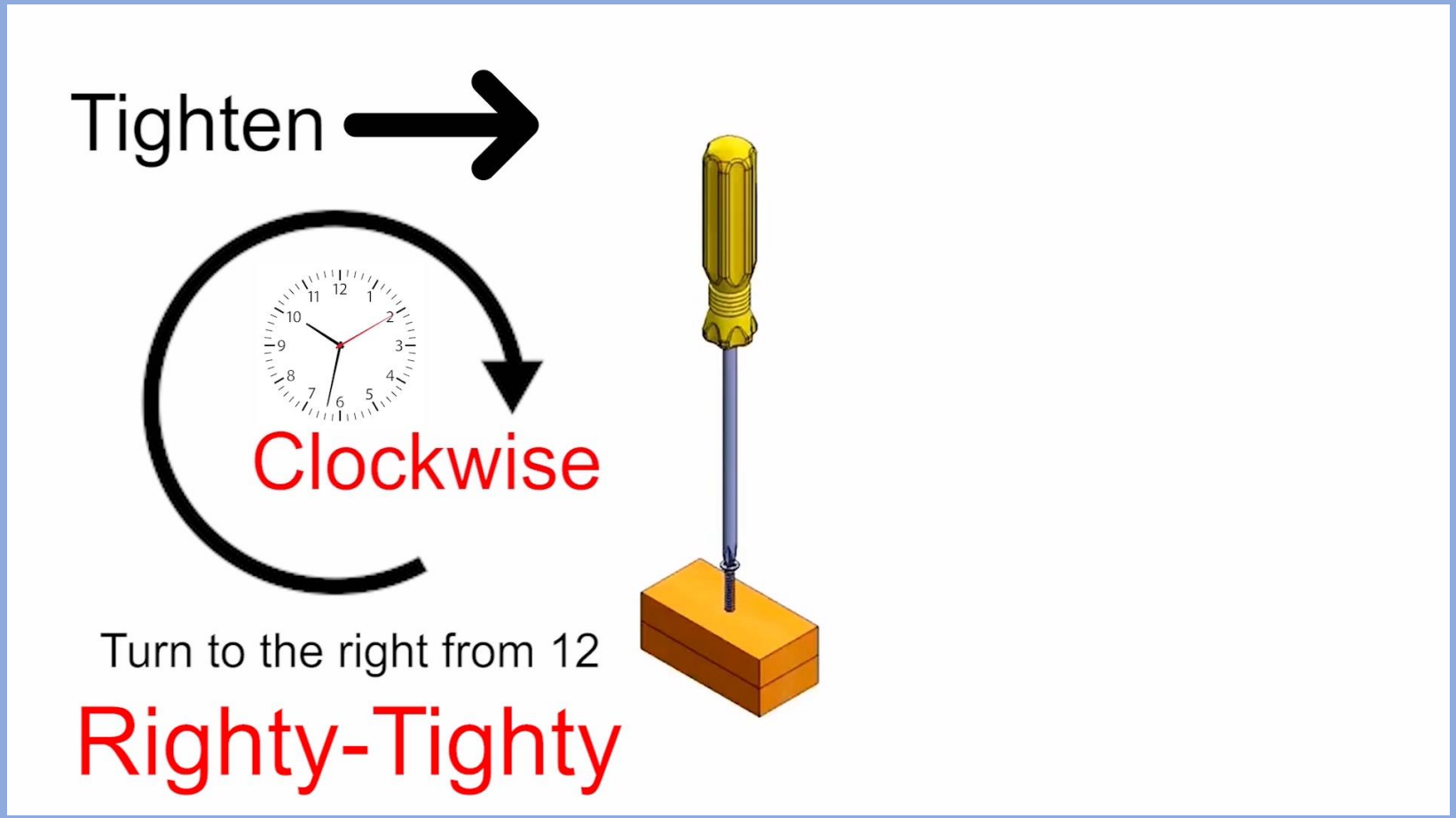


Recap of positional vocabulary

- Which direction do I turn the screwdriver to tighten the screw?



Righty Tighty Lefty Loosey



Describing Movement – Clockwise and Anticlockwise Turns

- How many degrees in a whole turn?
- 360

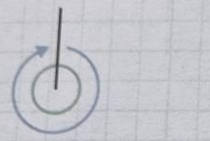
- How many degrees in a half turn?
- 180

- How many degrees in a quarter turn?
- 90

- A turn to the right is clockwise or anticlockwise?
- Clockwise

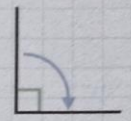
- If the dial was turned three quarters of a turn to the right, what would the oven be set to now?
- 180

1) **Whole turn** — turning one whole circle.



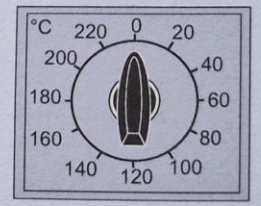
2) **Half turn** — turning half a circle.

3) **Quarter turn** — turning a quarter of a circle.



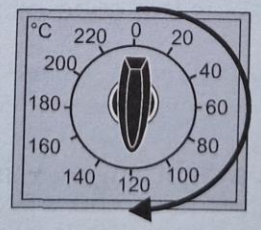
EXAMPLE:

The dial on an oven is set to 0 °C.
The dial is turned half a turn to the right.



What temperature is the oven set to now?

1) Half a turn means turning half a circle.
2) To the right is going this way: →
3) So the dial moves like this:



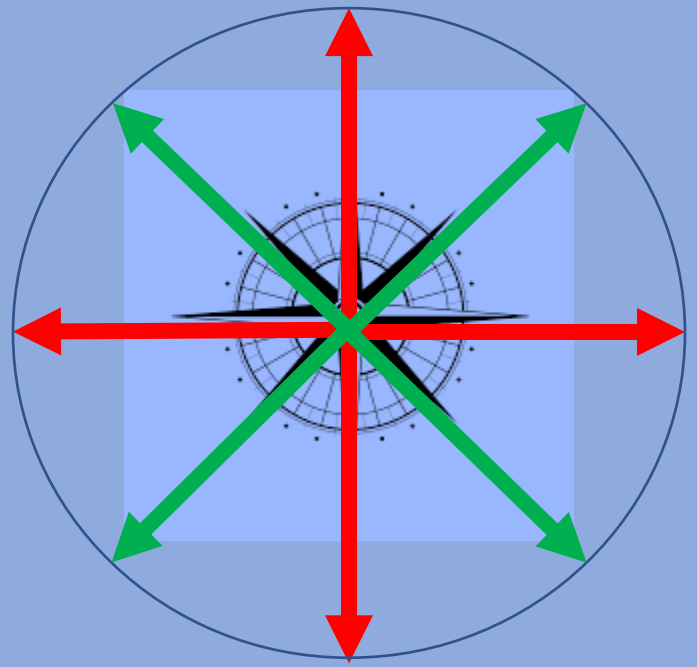
The oven is set to **120 °C**.

The Compass Rose
Cardinal Points

NORTH
000°
Or
360° (4 x 9 = 36)

NORTHWEST
315°

NORTHEAST
045°



WEST
270°
(3 x 9 = 27)

EAST
090° (1 x 9 = 9)

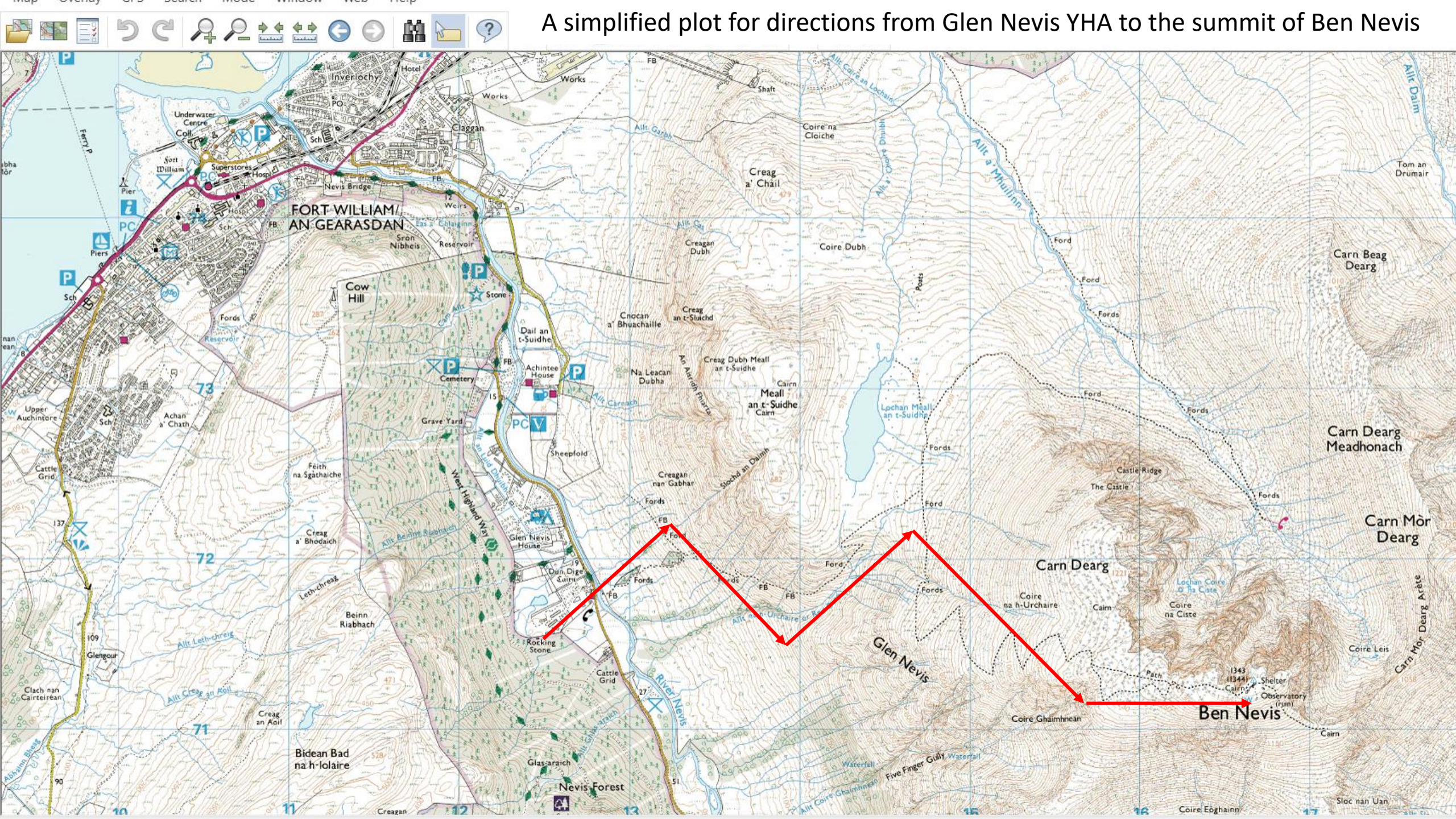
SOUTHWEST
225°

SOUTHEAST
135°

SOUTH
180° (2 x 9 = 18)

A Route from Glen Nevis YHA to the Summit of Ben Nevis

A simplified plot for directions from Glen Nevis YHA to the summit of Ben Nevis



Common Map Scales

- Maps are scale drawings of real locations from a bird's eye (aerial) perspective. Typical map scales for walking and hiking include:

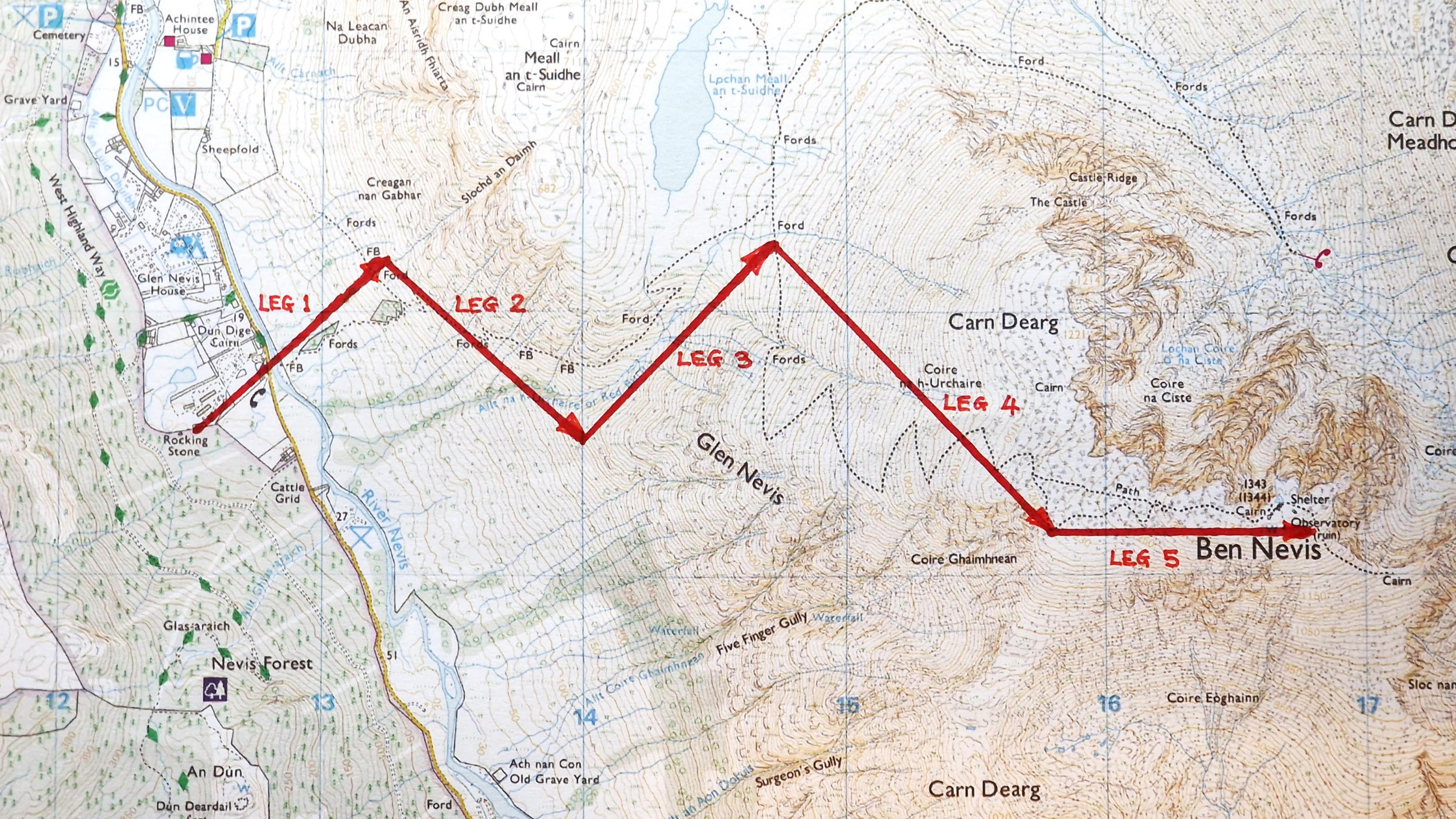
- 1:10,000 - 1cm on the map represents 10,000cm or 100m or 0.1km.
  (A 10cm line on the map would be 1km long in real life)

- 1:25,000 - 1cm on the map represents 25,000cm or 250m or 0.25km.
  (A 4cm line on the map would be 1km long in real life)

- 1:50,000 - 1cm on the map represents 50,000cm or 500m or 0.5km.
  (A 2cm line on the map would be 1km long in real life)

A closer look at map scales – follow along with a calculator.

- 1:25,000 is a ratio, meaning 1cm on the map is equal to 25,000cm in real life, or on the ground.
- 25,000cm is a big number, but divide by 100 to get metres.
- Therefore 1cm on the map is equal to 250 metres on the ground.
- We can divide this further by 1000 to get a value in kilometres.
- Therefore 1cm on the map is equal to 0.25km, or a quarter of a km.
- How far is it on the ground if the route is 4cm long?
- 4 x 0.25km = 1km
- How far would it be if the route on map was 6cm long?
- 6 x 0.25km = 1.5km


LEG 1
LEG 2
LEG 3
LEG 4
LEG 5
Ben Nevis
Carn Dearg
Glen Nevis
Nevis Forest
River Nevis
Achintee House
Cemetery
Grave Yard
Sheepfold
West Highland Way
Glen Nevis House
Dun Dige Cairn
Rocking Stone
Cattle Grid
Glas-araich
An Dùn
Dùn Deardail
Ach nan Con Old Grave Yard
Na Leacan Dubha
Creag Dubh Meall an t-Suidhe
Meall an t-Suidhe
Creagan nan Gabhar
Slochd an Daimh
Lochan Meall an t-Suidhe
Castle Ridge
The Castle
Coire na h-Urchaire
Coire na Ciste
Lochan Coire na Ciste
Coire Ghaimhnean
Coire Eoghainn
Five Finger Gully
Surgeon's Gully
Shelter
Observatory (ruin)
Path
Fords
Ford
FB
Cairn
1343 (1344)
12
13
14
15
16
17

Exercise: Ben Nevis Route Card

- Fill in the route card below following the track of the red lines on your map.
- The LEG is the section walked in one direction.
- The HEADING is the nearest matching compass **cardinal direction** (i.e. north, south, southwest etc.)
- The DISTANCE is that travelled on that leg in **km** (i.e. measure the section of track – the red line)
- The BEARING is the compass direction quoted in **degrees** (remember that North is 000 degrees)
- The first leg has been completed for you. (EL3 students to fill in Legs 2 & 3, L1 and L2 to fill in Legs 4 & 5)
- Share your leg information with the others in the group.

LEG	HEADING	DISTANCE	BEARING
1	North East	1km	045°
2			
3			
4			
5			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Review the directions you were given

- Score the other team based upon:

  - Clarity of instructions. Were they easy to understand? / 5
    (Note: Directions can be clear even if they are not accurate!)

  - Were all of the leg details correct? (5 points if all correct) / 5

  - Overall score out of 5? / 5
    (Would you ask this team for directions again?)

Total Score: / 15

Exercise: Ben Nevis Route Card - Answers

- Leg 1 – Head North East for 1km on a bearing of 045 degrees.
- Leg 2 – Head South East for 1km on a bearing of 135 degrees.
- Leg 3 – Head North East for 1km on a bearing of 045 degrees.
- Leg 4 – Head South East for 1.5km on a bearing of 135 degrees.
- Leg 5 – Head East for 1km on a bearing of 090 degrees.

LEG	HEADING	DISTANCE	BEARING
1	North East	1km	045°
2	South East	1km	135°
3	North East	1km	045°
4	South East	1.5km	135°
5	East	1km	090°

Practice Exam Questions

- We will now look at a practice exam questions at the different levels of Maths you are studying.

- Try to complete the question on your own and write down your answer.

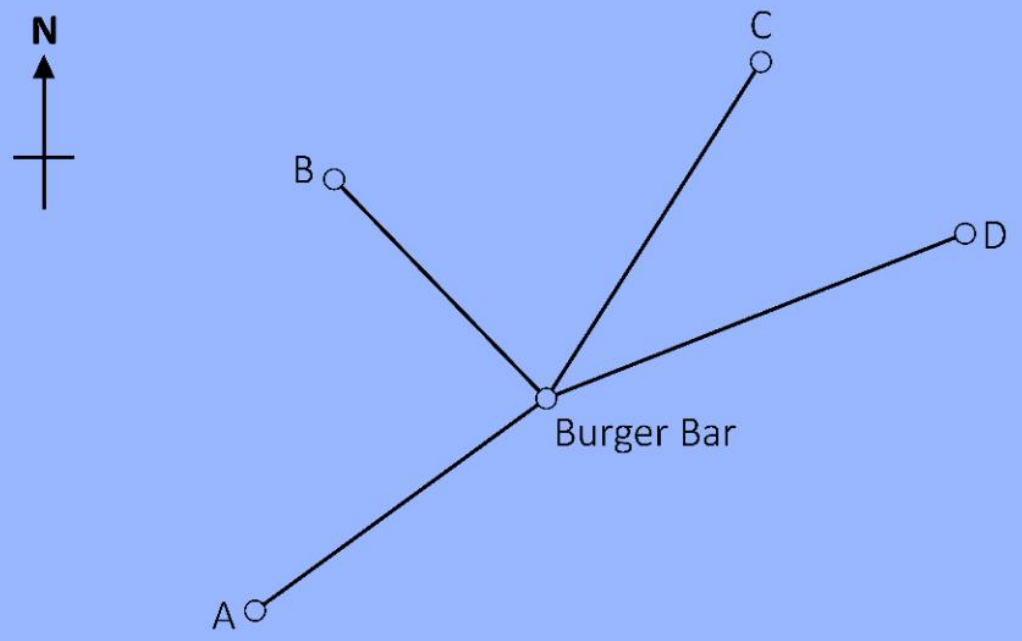
- And remember…

Always Read the Question

And always re-read the questions at the end.

Sample Exam Question – EL3

4(f) The nearest restaurant to the burger bar is restaurant B.



Use the points of the compass to describe the direction of the burger bar **from** restaurant B.

[1 mark]

Sample Exam Question – L1

2 (c) Asmita does home visits.

She drives from Skegness to Candlesby to visit one of her patients.

Asmita has a map with scale 1 cm : 2 km

The distance on the map between Skegness and Candlesby is 6.5 cm

Asmita can claim 28p per kilometre for fuel.

Complete the travel expense form below for Asmita's **one-way** journey from Skegness to Candlesby.

[3 marks]

Your answer:

Journey	Distance (km)	Pence per km	Total (£)
Skegness to Candlesby		28	

Sample Exam Question – L2

Activity 4: Archaeology

4 (a) Archaeologists study human history by digging up and analysing items from the past.

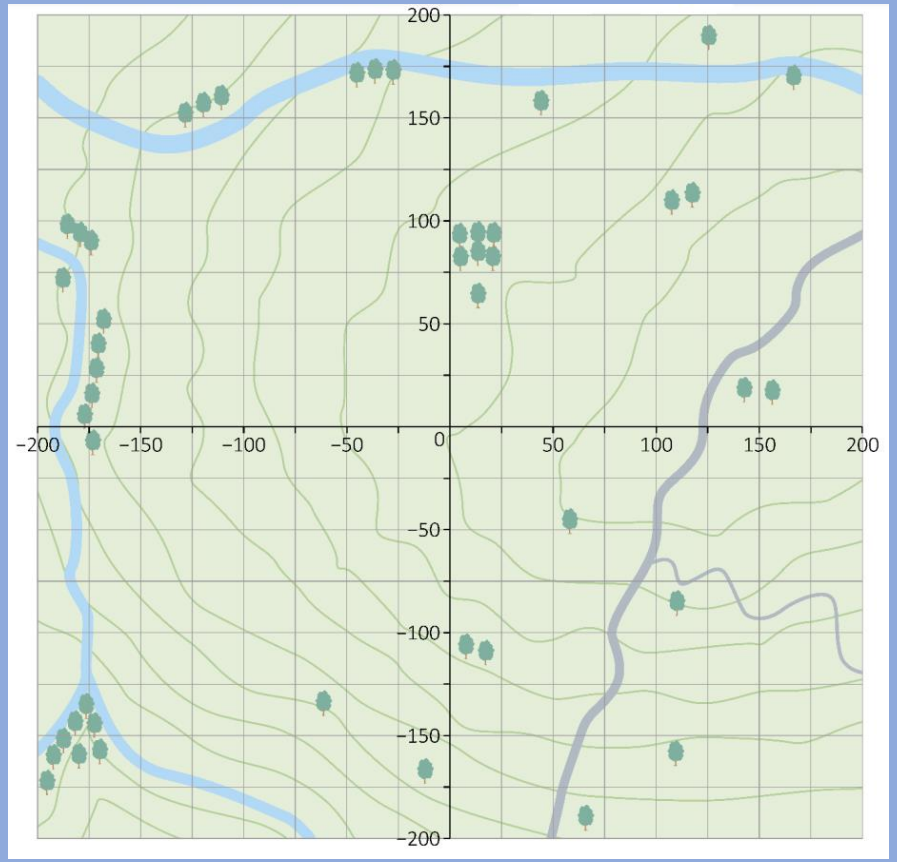
Chen is a volunteer with a community archaeology group.
At the weekends she helps to dig at an archaeological site.

The volunteers have to record exactly where each item is found.
They do this by using a coordinate grid laid over a map of the site.

The volunteers have found the wall of a building.
It runs in a straight line from (–125, 100) to (150, –75)

Draw the position of the wall on the grid.

[2 marks]

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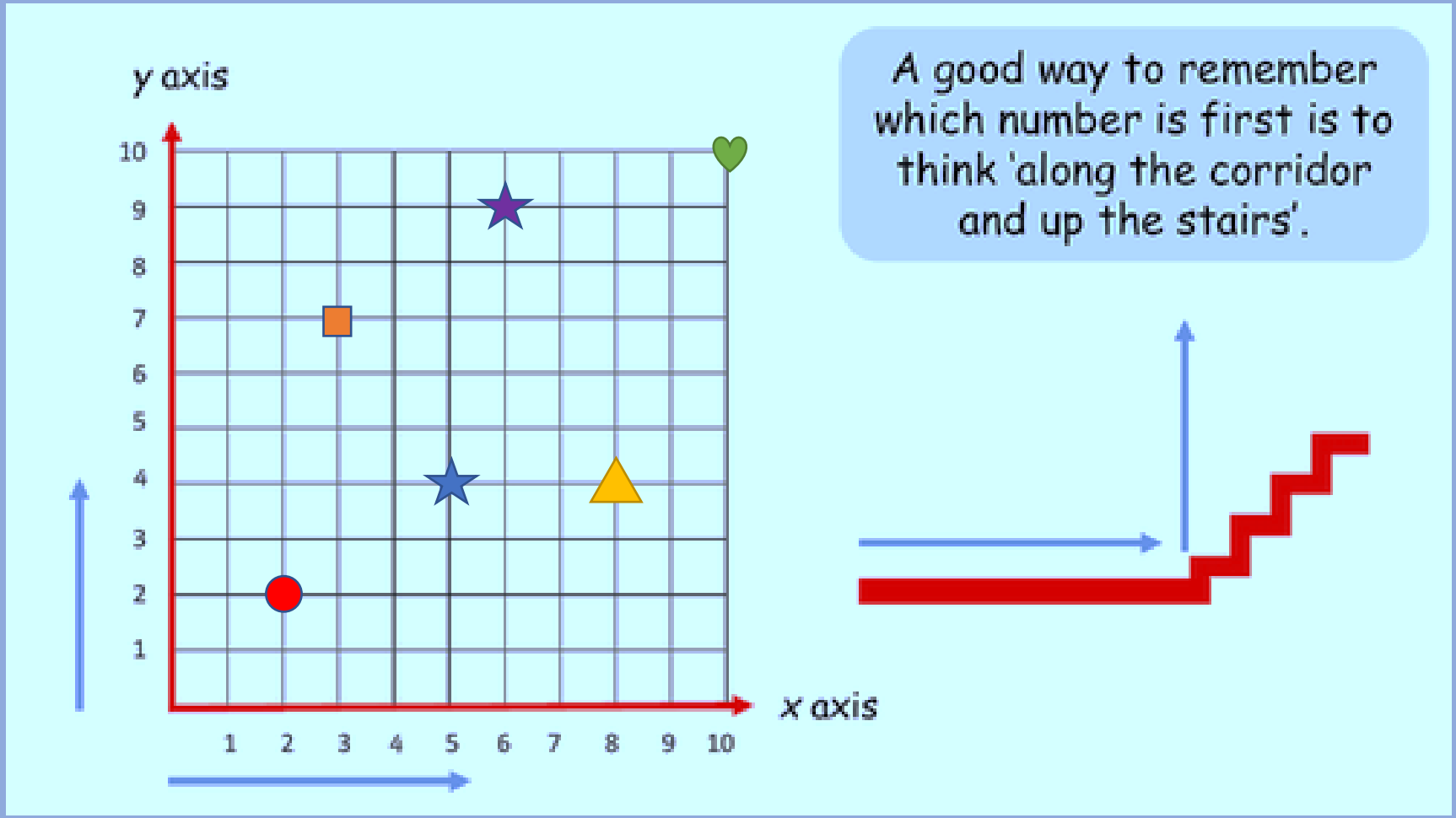
Describing Position - Coordinates

- **Coordinates are a method of describing position on a map.**
- **We read the value from the x-axis (along the corridor) first, followed by the value on the y-axis (up the stairs).**
- The coordinates of the blue star are (5, 4).
- What are the coordinates of the red circle?
- (2, 2).
- What are the coordinates of the orange square?
- (3, 7).
- What are the coordinates of the yellow triangle?
- (8, 4).
- What are the coordinates of the green heart?
- (10, 10).
- What are the coordinates of the purple star?
- (6, 9).



Note: Coordinates are presented in **brackets (x, y)** so they do not become confused with other text.


Poole via Ferry 3¾
COAST PATH
4 Old Harry
630 Minehead
GRID REF SZ036866


VEHICLE CATAMARAN
FROM POOLE TO
Guernsey 3 hours
Jersey 4½ hours
St Malo 7½ hours
VEHICLE FERRY
FROM POOLE TO
Cherbourg 4½ hours
POOLE HARBOUR
Brownsea Island
Maryland
The Villa
Fire Twr
Stone
Outdoor Centre
Branksea Castle
North Haven Point
Ferry P
Main Channel
Parkstone Bay
Marina
Lower Hamworthy
Pottery
Lilliput
Poole Harbour Trail
B 3369
Sandbanks
Hotel
Ferry
South Haven Point
Toll
Shell Bay
Jerry's Point
Furzey Island
Oil Wells
Green Island
Round Island
Fitzworth Point
Ower Bay
Cleavel Point
South Deep
Plantation
A 350
88
87
86

In this lesson we will look at UNSDG 10 – Reduced Inequalities

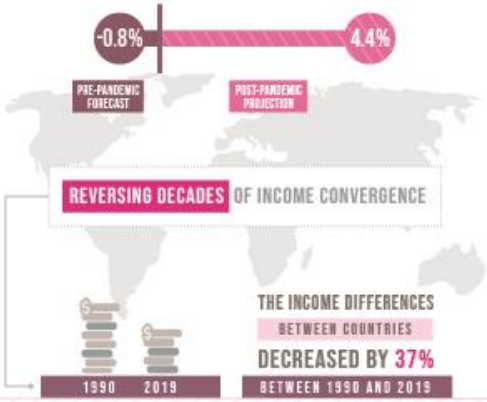
United Nations Sustainable Development Goals

10 REDUCED INEQUALITIES

REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

COVID-19 TRIGGERS THE LARGEST INCREASE IN BETWEEN-COUNTRY INEQUALITY IN **THREE DECADES**,

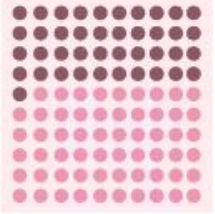
CHANGE OF BETWEEN-COUNTRY INEQUALITY
(2019-2020)



THE INCOME DIFFERENCES BETWEEN COUNTRIES DECREASED BY **37%** BETWEEN 1990 AND 2019

IN 2022, REFUGEE NUMBERS HIT A RECORD HIGH OF **34.6 MILLION**

AMONG THEM WERE:
- CHILDREN: 41%



GLOBALLY, **WOMEN** ARE TWICE AS LIKELY AS MEN TO REPORT EXPERIENCING **DISCRIMINATION** BASED ON THEIR SEX

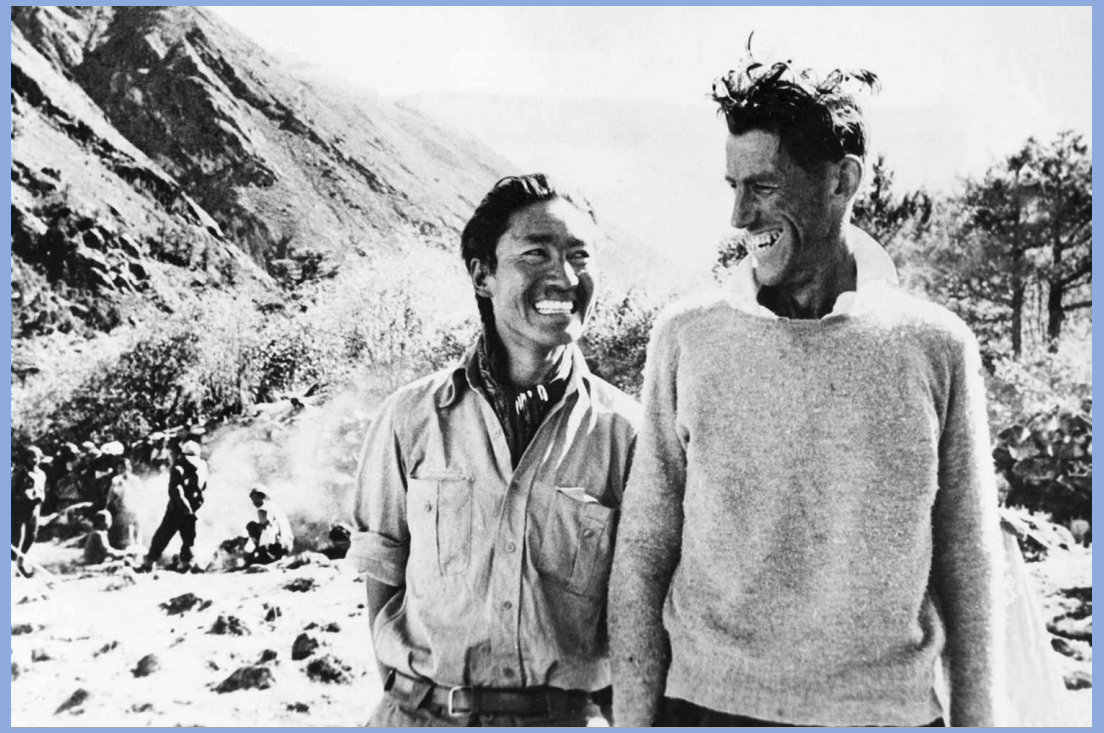
THE TRAGIC LOSS OF NEARLY **7,000 LIVES** ALONG MIGRATORY ROUTES IN 2022

UNDERSCORES THE PRESSING NEED FOR **IMMEDIATE ACTION** TO ENSURE SAFE MIGRATION

THE SUSTAINABLE DEVELOPMENT GOALS REPORT 2023: SPECIAL EDITION- UNSTATS.UN.ORG/SDGS/REPORT/2023/

What do you see?

Sherpa



Sherpa Tenzing Norgay and Edmund Hillary – the first climbers to successfully summit Mount Everest in 1953.

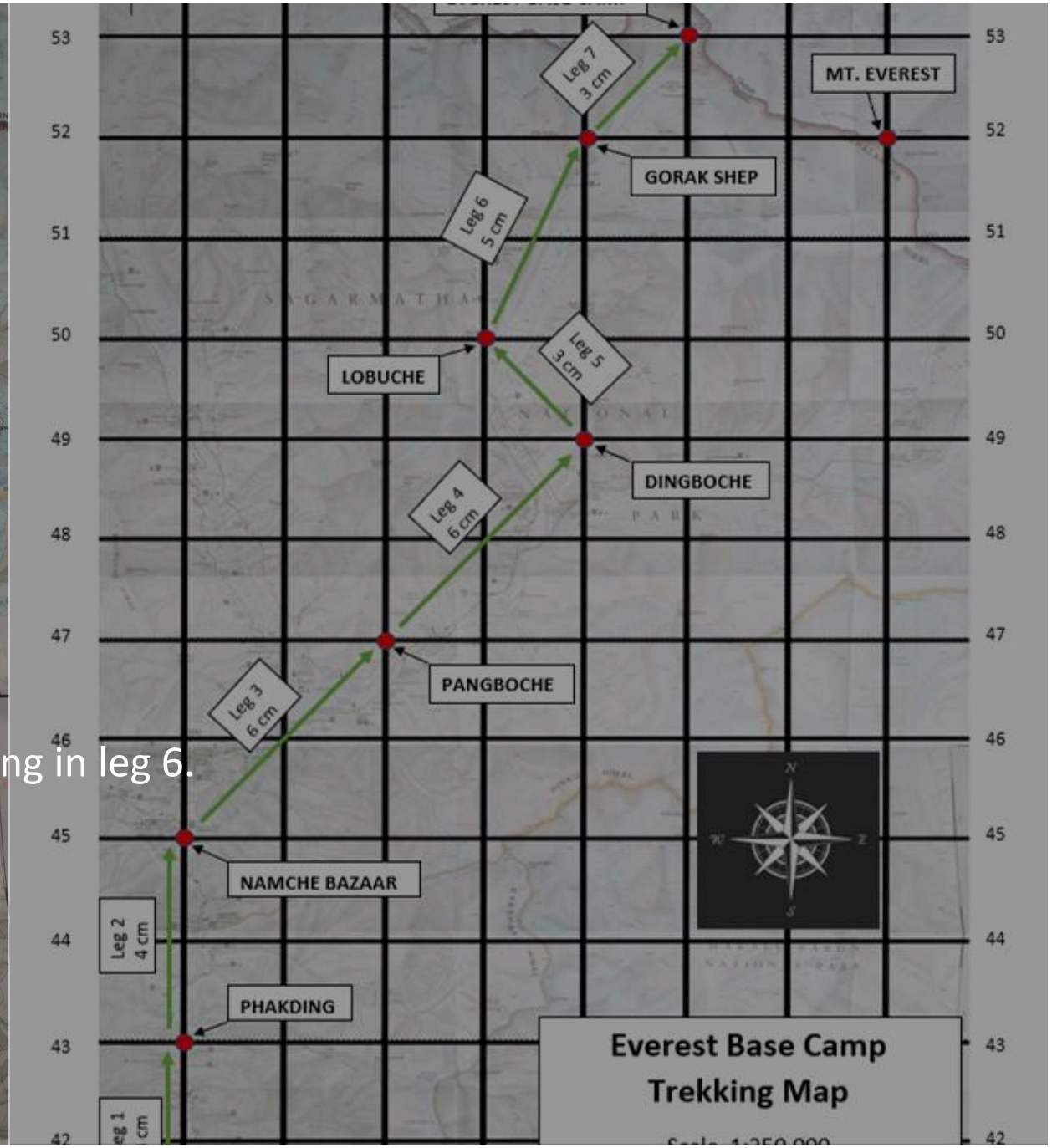
The Sherpa are an ethnic group, native to the Himalayan mountainous regions of Nepal and the Tibet Autonomous Region. They are skilled mountaineers. Their community has been greatly affected by Westerners who come to the Himalayas to climb mountains.

A trek from Lukla to Everest Base Camp

- You have been given a map that outlines the route from Lukla to Everest Base Camp in Nepal.
- In pairs, complete the route card for this journey.
- Give the **coordinates** of the starting point and the finishing point (remember along the corridor and then up the stairs).
- Give the **heading** as a cardinal point of the compass (e.g. North).
- Give the **distance**. Note that the path has been measured for you in **cm** but you will need to convert this to **km**. (1cm of map = 2.5km on the ground).
- Give the **bearing**. You can use your compass handout for reference, but one of the angles does require more precise measurement (L1 and L2).
- EL3 to complete legs 3 & 4, L1 and L2 to complete legs 5, 6 and 7.
- Share your directions with the other group for review.

Everest Base Camp Trek

- Use your map to complete the route card
- Remember the 1cm = 2.5km
- You will need a protractor to measure the bearing in leg 6.



Everest Base Camp Trek Route Card

Leg	Start Point (coordinates)	Finish Point (coordinates)	Heading	Distance	Bearing
1. Lukla to Phakding	(46, 41)	(46, 43)	North	10 km 4cm x 2.5 = 10	000
2. Phakding to Namche Bazaar	(46, 43)	(46, 45)	North	10 km 4cm x 2.5 = 10	000
3. Namche Bazaar to Pangboche					
4. Pangboche to Dingboche					
5. Dingboche to Lobuche					
6. Lobuche to Gorak Shep					
7. Gorak Shep to Everest Base Camp					

Legs 1 and 2 in real life – with Kara and Nate


04:59

Review the directions you were given

- Score the other team based upon:

  - Clarity of instructions. Were they easy to understand? / 5
    (Note: Directions can be clear even if they are not accurate!)

  - Were all of the leg details correct? (5 points if all correct) / 5

  - Overall score out of 5? / 5
    (Would you ask this team for directions again?)

Total Score: / 15

Legs 3 and 4 in real life – with Kara and Nate

Review the directions you were given

- Score the other team based upon:

  - Clarity of instructions. Were they easy to understand? / 5
    (Note: Directions can be clear even if they are not accurate!)

  - Were all of the leg details correct? (5 points if all correct) / 5

  - Overall score out of 5? / 5
    (Would you ask this team for directions again?)

Total Score: / 15

Legs 5, 6 & 7 in real life – with Kara and Nate

Everest Base Camp Trek Route Card - Answers

Leg	Start Point (coordinates)	Finish Point (coordinates)	Heading	Distance	Bearing
1. Lukla to Phakding	(46, 41)	(46, 43)	North	10 km 4cm x 2.5 = 10	000
2. Phakding to Namche Bazaar	(46, 43)	(46, 45)	North	10 km 4cm x 2.5 = 10	000
3. Namche Bazaar to Pangboche	(46, 45)	(48, 47)	Northeast	15 km 6cm x 2.5 = 15	045
4. Pangboche to Dingboche	(48, 47)	(50, 49)	Northeast	15 km 6cm x 2.5 = 15	045
5. Dingboche to Lobuche	(50, 49)	(49, 50)	Northwest	7.5 km 3cm x 2.5 = 7.5	315
6. Lobuche to Gorak Shep	(49, 50)	(50, 52)	Northeast (NNE)	12.5 km 5cm x 2.5 = 12.5	025
7. Gorak Shep to Everest Base Camp	(50, 52)	(51, 53)	Northeast	7.5 km 3cm x 2.5 = 7.5	045

Any Questions?

Would you find a day out useful?

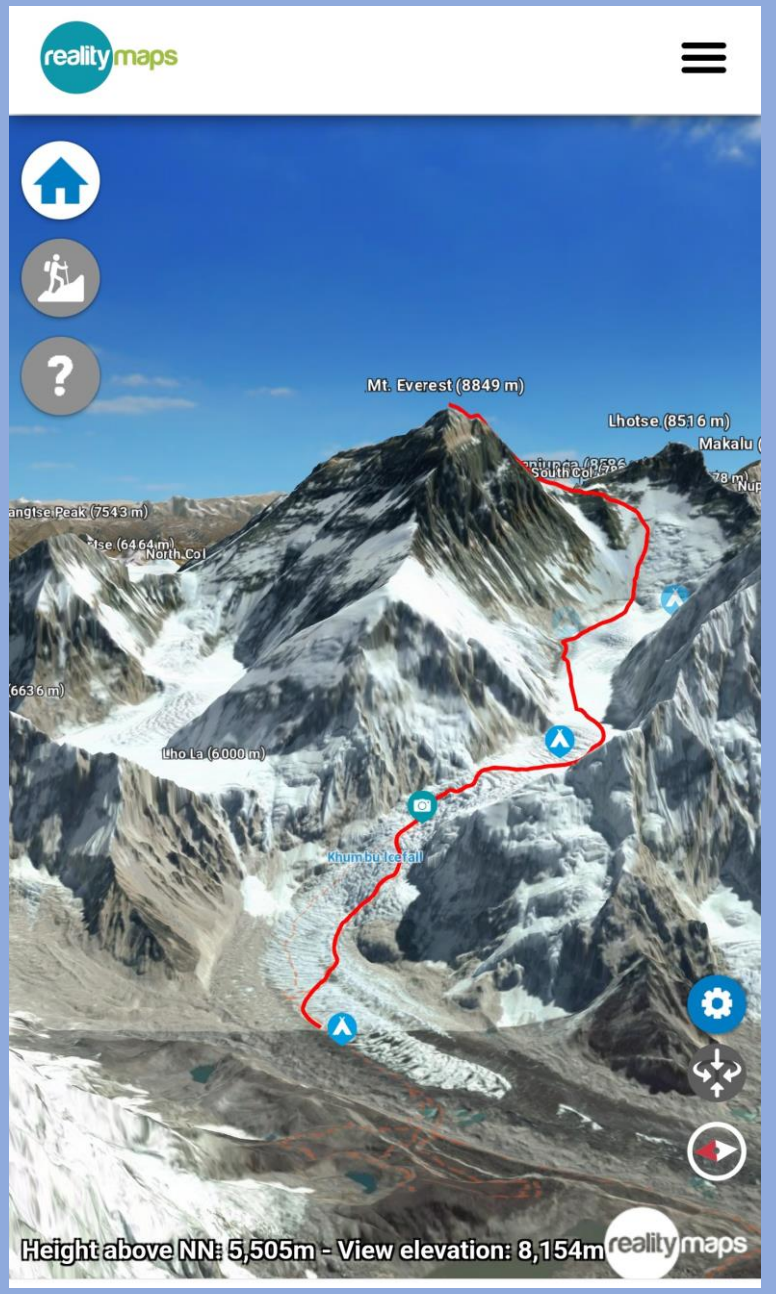
Summiting Mount Everest – NatGeo

(WARNING: Briefly shows dead climbers)

The Glamour of Mount Everest – Brian Blessed

(WARNING: Contains some coarse language)

Explore Mount Everest in 3D



Private Study/Homework

- Read the section of the CGP Textbook (photocopies) relevant to your level of study.
- Attempt all questions.
- Look at the copy of Ordnance Survey Map Symbols and familiarise yourself with their meaning.

Any Questions?

Thank you!


FINISH