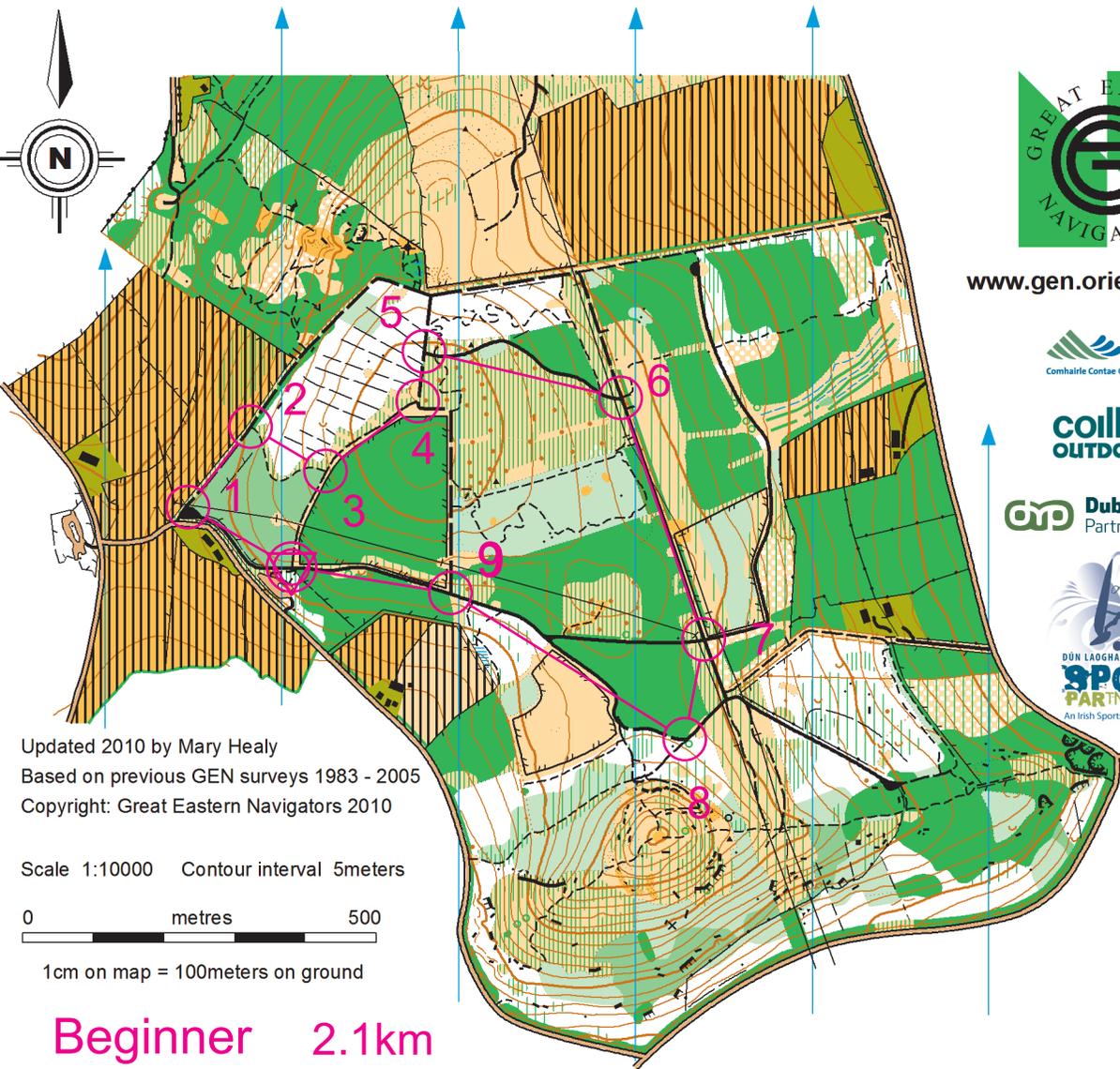


Carrickgollogan wood

Map Legend



Updated 2010 by Mary Healy
 Based on previous GEN surveys 1983 - 2005
 Copyright: Great Eastern Navigators 2010

Scale 1:10000 Contour interval 5meters

0 metres 500

1cm on map = 100meters on ground

Beginner 2.1km



www.gen.orienteering.ie



- Contour
- Index contour
- Form line
- Earth bank
- Earth wall
- Small earth wall
- Erosion gully
- Small erosion gully
- Knoll
- Small Knoll
- Elongated knoll
- Depression
- Small depression
- Pit
- Broken ground
- Rock pillars / cliffs
- Impassable cliff
- Passable rock face
- Rocky pit
- Cave
- Boulder
- Large boulder
- Boulderfield
- Boulder cluster
- Stony ground
- Bare rock
- Waterhole
- Minor water channel
- Marsh
- Distinct veg. boundary
- Indistinct veg. boundary
- Power line
- Major power line
- Stone wall
- Ruined stone wall
- High stone wall
- Fence
- Ruined fence
- High fence
- Building
- Settlement
- Paved area
- Out of bounds
- High tower
- Cairn
- Special man-made feature
- Minor Road
- Forest Road
- Vehicle track
- Footpath
- Small path
- Indistinct path
- Narrowride
- Open land
- Rough open land
- Rough open
- Forest: easy running
- Forest: slow running
- Undergrowth: slow running
- Forest: difficult to run
- Undergrowth: difficult to run
- Vegetation: impassable

1:	2:	3:	4:	5:	6:	7:	8:	9:						
Road	Track	Track	Track	Road	Road	Road	Road	Road						
Track	Junction	Junction	Junction	Track	Track	Junction	Track	Junction						
Junction				Junction	Junction		Junction							

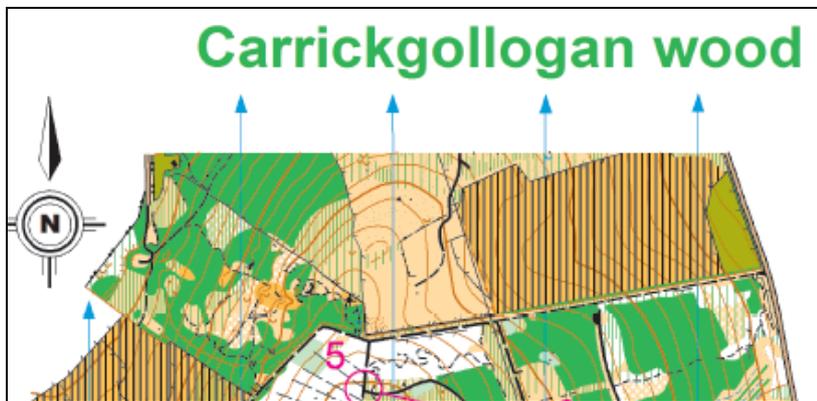
1. Find the controls in the order shown on the map. 2. Note the unique code on the control post in the corresponding box.

Welcome to Carrickgollogan

Name

Today's Date

There are 9 controls for you to find on this Adventure Challenge



Secondary Schools Workbook



Control Point 1 – Data Collection

This activity runs throughout the trail. As you go around the course, collect a tally on the number of waymarker posts (only posts with arrows on them for walking routes) and orange directional arrow discs. Use this table to keep a record as you go. Keep your eyes peeled!

	Tally	Total
a) Waymarker posts		
b) Orange discs		

When you have completed the trail, work out:

If one waymarker post costs €12 and one orange arrow disc costs €4, what would be the total cost of waymarker posts and arrow discs?

Waymarker posts € _____

Orange arrow discs € _____

c) Total cost of posts and discs € _____

d) If you have a total budget of €600, what % of it will be used for these waymarker posts and orange arrow discs? _____

Control Point 2 – Tree planting calculation

Woody the forester has bought the adjacent field and wants to establish a new forest. Using the following information, answer the questions below:

- Each block of forest takes 200 trees
- Trees cost €50 for 100 trees
- It takes 1/2 hour to plant 50 trees

a) How many trees will be needed? _____

b) How much will they cost? _____

c) How long will it take to do all the planting? _____

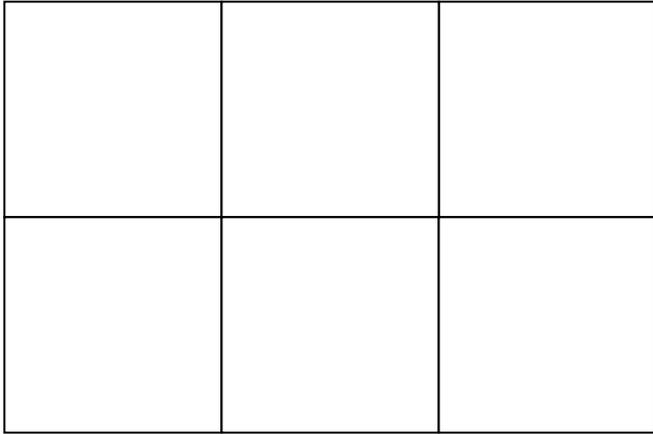


Diagram of the forest area

Control Point 3 – Fencing calculation

The forest area within this piece of fence is 32,000 m² (or 3.2 hectares). If the area is rectangular in shape, and one side measures 160m, what is the length of the other side?

How many metres of fence are required to enclose the entire area?

If there is a wooden post supporting the fence every 5 metres, how many posts are required to erect the entire fence?

Remember to look out for waymarker posts and orange arrow discs!

Control Point 4 – How old & tall is that tree?

Trees are the longest-living of all plants with some species living for thousand of years. If you know when a tree is planted in Carrickgollogan, you can easily and accurately determine its age. But how do you tell its age if you don't know this information? Although trees grow at different rates you can estimate the age of a living a tree, by measuring the circumference of its trunk (girth) – the older the tree, the greater its girth. On average, trees in Ireland increase their girth by 2.5cm a year.

Look at the pine tree with the yellow painted dot on it. What age do you think this tree is?

_____ years old approximately

Now for some measurements to figure out its actual age:

Experiment 1:

Using your measurement tape, measure the circumference of the tree trunk, at the standard height of 1.5 metres above the ground. If the ground is uneven, measure on the upper side of any slope. remember to change your measurement to centimetres.

What is the circumference of your tree's trunk?

cm/2.5cm = years old approx.

Why are you dividing by 2.5cm? _____

Do you need to make any adjustments because of its species or the thickness of the bark?

YES / NO

Why? _____

Experiment 2:

This same pine tree has layers of branches (whorls) up the trunk.

How many whorls are there?

= years old approx.

Experiment 3:

Now to work out the height of this tree:

To calculate the height of the tree you will need a right-angled isosceles triangle from your mathematical set or you can make one out of cardboard.

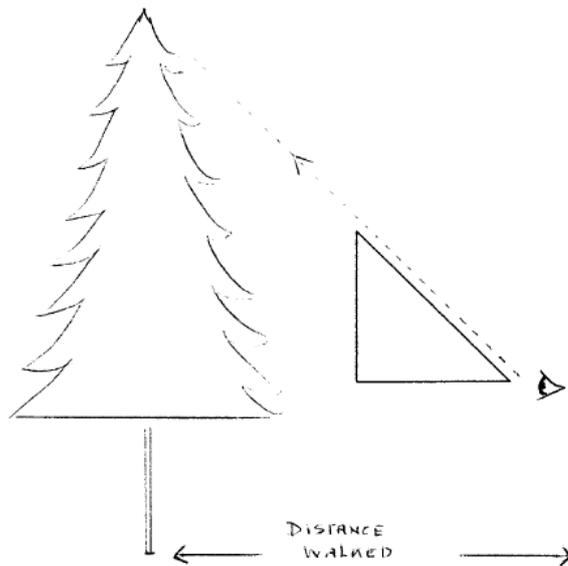
1. Stand at the tree
2. Walk away from the tree and stop when you can view the top of the tree along the hypotenuse (i.e. the side opposite the right angle) of the triangle.
3. Ensure that the base line of the triangle is parallel with the ground.
4. Now measure the distance from the tree to where you stopped and add your height.

a) Distance from tree to where you stopped _____(m)

b) Your height _____ (m)

5. You now have the height of the tree.

a) _____ + b) _____ = _____(m)



Control Point 5 – Lead Mines Tower

From this point walk a further 100m north along the trail to the Lead Mines tower.

From the early 19th century, up to the 1920s lead and silver were mined here. Ore was also brought from Glendalough for processing here. In front of you, you can see the granite chimney of the Ballycorus lead mine. The top third of the tower has been removed for safety reasons.

What do you think was the purpose of the chimney?

What do you think lead was used for back in the early 19th century?



Now walk back to the post at control point 5.

Control Point 6 – Forest track

Basil needs to resurface the forest track between control point 6 (from where the trail narrows) and the end of the big pylon. Approximately how many square metres of gravel will be required to do the job?

Hint: you need to find the length of the path to the nearest metre and multiply that by the width of the path to the nearest half a metre.

a) Length of path: _____

b) Width of path: _____

c) Area of path: _____m²

d) If gravel costs €6 a square metre to spread, how much will the job cost?
€_____

Remember to look out for waymarker posts and orange arrow discs!

Control Point 7 – Energy

What are you standing under here?

What is the voltage of this power line?

Why is electricity transmitted at high voltages?

What symbol is used to show this feature on your orienteering map?

Suggest three ways how you can save electricity in your home and help save the environment.

1.

2.

3.

Control point 8 – How old is that tree?

Look at the log under the big tree to your left. The age of a tree can be measured accurately after it has been felled, by counting the growth rings. Some of the rings are much wider than others. In other words, the tree grew more in some years than in others.

Why do you think this might be?

Each ring is a layer of wood that took a season to grow i.e. each year has a light ring (springwood) and dark ring (summerwood) together. Trees do not grow at the same speed all year. In which season do you think trees in Ireland will grow most? Why?

To find the age of the tree when it was cut down just count the dark rings. So this tree is how many years old? _____

If this tree was cut down in 2006, what year was this tree planted?

What is the volume of this piece of wood?

Control Point 9 – Area and %

There are a number of different waymarking signs and plaques on this post.

What is the area covered by the different plaques?

a) Area of yellow walking man sign? _____

b) Area of round discs? _____

c) Area of orienteering plaque? _____

d) Total area covered by plaques? _____

What percentage of the surface area of the post is covered by plaques?

Well done!

Secondary Schools Workbook - Answer Sheet

Score 10 points per control point, total 90 points

Control Point	Score	Answers	
1	2	Tally Waymarker posts	14
	2	Tally Orange discs	27
		Cost waymarker posts	168
		Cost orange discs	108
	3	Total cost posts & discs	276
	3	% of budget used for posts and discs?	46%
2	3	How many trees needed?	1200
	3	How much will they cost?	€60,00
	4	How long will it take to plant?	12 hours
3	3	Length of other side?	200
	3	How many metres of fence?	720
	4	How many posts required to erect fence?	144
4	1	Estimate age of tree	
	1	Expt 1 - Circumference of tree trunk	93cm
	2	Approx age	37.2
	2	Adjustments for bark	Yes, bark on this tree is quite thick, so would take a few cm off the diameter
	2	Expt 2 - How many whorls?	About 33 (a few missing off bottom of tree)
	2	Expt 3 - Height of tree?	Between 18-20m tall
5	5	What was the purpose of the chimney?	In the first quarter of the 19th century the Ballycorus lead mine was one of the most important of the Dublin and Wicklow group of mines. Not only were lead and silver mined directly on the spot but "dressed" ore was brought by horse and cart from Glendalough and other Wicklow mines for processing here. Up to the 1920s ore was melted and converted into ingots, the silver separated and refined, and litharge, red lead and shot manufactured. The chimney with its attendant flue which runs a mile or so westward downhill and which may still be traced, carried off the poisonous substances and the noxious fumes from the smelting process and deposited them in the air about 900 feet above sea level. On a regular basis workmen cleaned the flue by removing sulphate of lead in barrows through the various doors which ventilated it.
		What was lead used for in early 19th century?	To manufacture pipes and roofing as Dublin's suburbs expanded. Lead shot was manufactured
6		Length of path	40m
		Width of path	2.5m
	5	Area of path	100

	5	Cost of gravel	600
7	1	Standing under?	Powerlines
	2	Voltage	110kV
	2	Why electricity transmitted at high voltages?	To reduce the energy lost during long distance transmission
	2	Symbol	Look at map
	3	Suggest 3 ways to save electricity in your home	<ul style="list-style-type: none"> • Turn off lights • Unplug electrical items, don't leave on standby • Fit a lagging jacket around the hot water tank • Do not leave the fridge door open too long • Use energy efficient light bulbs
8	2	Tree grew more in some years than in others	Very dry summer - less growth, Long cold spring - growth delayed
	1	Season trees grow most	Summer, warmer weather, lots of rain
	2	No. of rings on log	Approx. 21
	2	Tree cut down in 2006, what year was it planted	1985
	3	Volume of this piece of wood. Radius – 8cm Height 147cm	$\pi r^2 \times h = 29556\text{cm}^3$
9		Area yellow walking map sign	160
		Area of round disc	50.3
		Area orienteering plaque	150
	5	Total area covered by plaque	671.1
		Area one side of post	1050
		4 sides of post	4200
	5	% area covered by plaques	16%
Total Score	90		