



KEY STAGE 2



WORKBOOK

School: _____

Date: _____

Names of people in our team:

1. _____
2. _____
3. _____
4. _____

Our team starts at Activity:

| Number | Activity | Tick Box |
|--------|----------------|----------|
| 2 | Amphitheatre | |
| 3 | North Gate | |
| 4 | Box Hedge Path | |
| 5 | Pergola | |
| 6 | Flower Garden | |
| 7 | Flower Garden | |
| 8 | Time Garden | |
| 9 | Time Garden | |
| 10 | Rock Garden | |

Welcome to Carnfunnock!

A garden is a busy place, especially at certain times of the year. Rose and Basil are two gardeners who work here and they need you to help them find out about some jobs they have to do, such as how many plants they need to buy and how long it will take to plant them.

The Maths Trail should help you to see that you can use your knowledge of maths in all sorts of ways in a garden. Use the spaces in the workbook to do your calculations.

Activity

5 Pergola

6 **7** Flower Garden

2 Amphitheatre

8 **9** Time Garden

4 Box Hedge Path

10 Rock Garden

3 North Gate

NB: Activity 1 runs throughout the garden.

Materials needed to do the activities:

1. The Workbook is downloadable from the internet at www.larne.gov.uk/carnfunnock/mathstrail and may be freely photocopied. The Workbook may only be used for educational purposes and not for commercial gain, (including books and publications) nor may they be copied onto the internet. One Workbook is necessary per team.
2. Pen, clipboard and metre stick per team of 2-4 pupils. Calculator optional.
3. One trundle wheel per school.

Acknowledgments:

Larne Borough Council would like to thank Cairncastle Primary School and the NEELB Maths Advisors based in Antrim Board Centre for their help in developing this Trail.

Data Collection



ACTIVITY 1 ACTIVITY

This activity runs throughout the trail. As you go around the walled garden, collect a tally on the number of bins, seats and entrances into it. Use this table to keep a record as you go.

You will find that they are located in all sorts of places throughout the garden, so keep your eyes peeled!

| | TALLY | TOTAL |
|--------------------------------|-------|-------|
| (a) Waste Paper Bins | | |
| (b) Garden Seats | | |
| (c) Entrances to Walled Garden | | |

When you have completed the trail, work out:

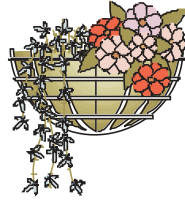
If one garden seat costs £150 and one waste paper bin costs £30, what would be the total cost of seats and bins?

Seats £ _____ Bins £ _____

(d) Total cost of seats and bins £ _____

▶▶ Now go to your next activity. ▶▶▶

The Amphitheatre



ACTIVITY
2
ACTIVITY

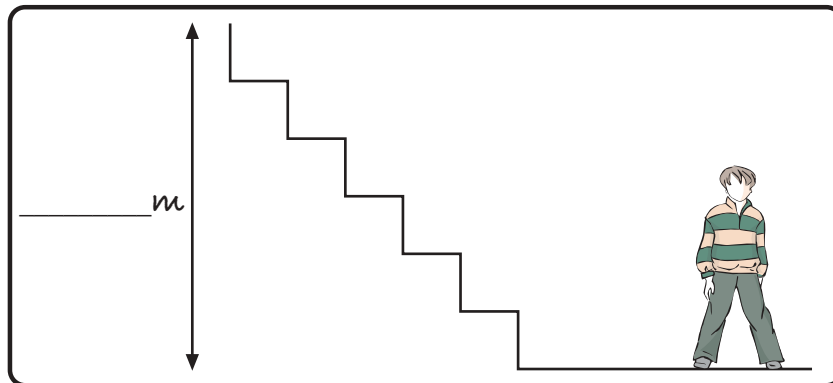
On the floor of the amphitheatre you can see paving tiles laid in circles.

(a) How many of these tiles are there in the first three circles starting at the centre?

(b) How many circles are there altogether? _____

(c) Work out to the nearest metre, the height from the floor to the top of the wall. Use your metre ruler to work this out. Write your answer in the diagram below.

Hint: use the height of one block to help you



This is a cross-section of the amphitheatre

New words:

- ✓ An amphitheatre is an open circular building with tiers of seats rising round an area.
- ✓ A cross-section is a diagram of how something looks if it has been cut through.

▶▶ Now go to the North Gate ▶▶▶

Remember to look out for garden seats, bins and entrances!

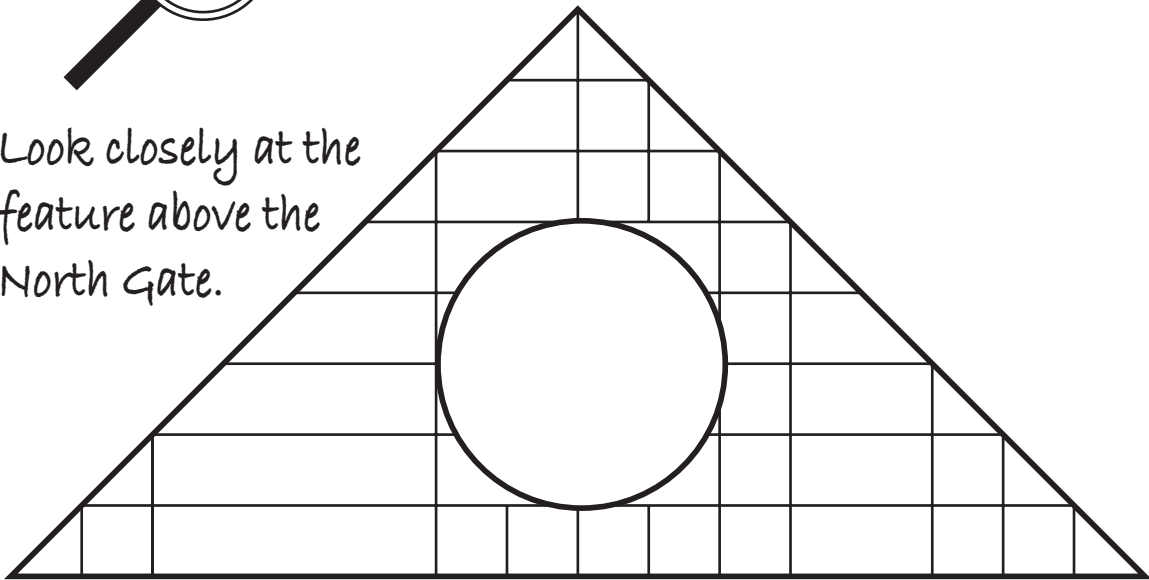


The North Gate

ACTIVITY
3
ACTIVITY



Look closely at the feature above the North Gate.



Complete the drawing. Now answer the following questions:

(a) How many small squares do you see? _____

(b) How many big squares do you see? _____

(c) How many small triangles do you see? _____

(d) What are the three angles of the large triangle?

Hint: the top angle is 90° _____, _____, _____

(e) What is the special name given to this type of triangle?
Circle the one you think is right:

right angled equilateral isosceles

▶▶ Now go to Box Hedge Path ▶▶

Remember to look out for garden seats, bins and entrances.



Box Hedge Path



ACTIVITY
4
ACTIVITY

Basil needs to concrete the path. Approximately how many square metres of concrete 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. Use the trundle wheel for the length and a metre ruler for the width.

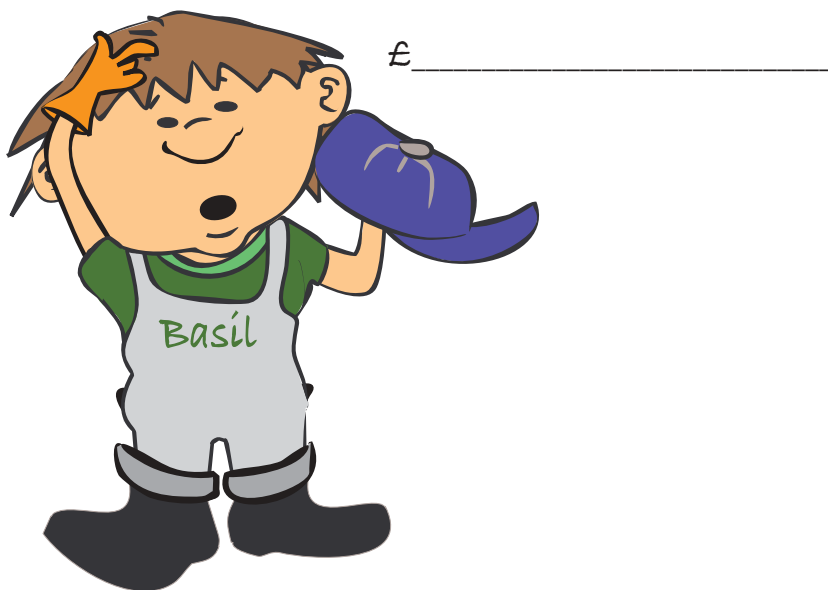
Remember to leave the trundle wheel back where you found it at the start of the path.

(a) Length of path: _____

(b) Width of path: _____

(c) Area of path: _____ m^2

(d) If concrete costs £6 a square metre to lay, how much will the job cost?



▶▶ Now go to The Pergola ▶▶

Remember to look out for garden seats, bins and entrances.

The Pergola



ACTIVITY
5
ACTIVITY

Rose the gardener needs to know how much wood was used for the top of the pergola. Look above your head.

(a) How many beams are there? _____

(b) What is the length of each beam? _____

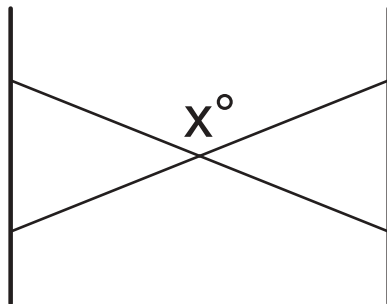
(c) Down at the side of the pergola, look at where the wood crosses to form a cross. What is the angle marked 'X°' in the diagram? Circle the one that you think is right.

acute angle

right angle

obtuse angle?

(d) Now give an estimate of the angle. Write your answer on the diagram.



New words:

- ✓ A pergola is a framework for climbing plants.
- ✓ In this case, a beam is a sturdy length of wood used to support a roof. This word has two other meanings. What are they?

(e) Meaning 1 _____

(f) Meaning 2 _____

▶▶ Now go to the Flower Garden ▶▶
Remember to look out for garden seats, bins and entrances.

The Flower Garden



ACTIVITY
6
ACTIVITY

(a) From a distance, look at all the palm trees and see if you can find the tallest.
How high do you think it is? Circle one of these answers:

2-3m

3-4m

4-5m

5-6m

Rose the gardener wants to plant flowers in the garden.
Using the following information, answer the questions below:

Each section takes 50 plants

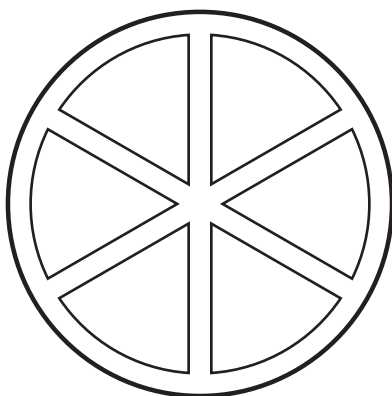
Plants cost £10 for 100 plants

It takes 1/2 hour to plant 50 plants

(b) How many plants will be needed? _____

(c) How much will they cost? _____

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



Flower Garden Diagram



▶▶ The next activity is also in the Flower Garden ▶▶

Are you remembering to count the seats, bins and entrances?

The Flower Garden



ACTIVITY
7
ACTIVITY

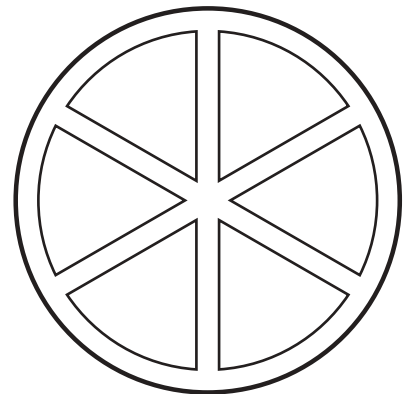
Basil needs to know the total length of the small hedges in the flower garden. Measure it for him to the nearest metre, using your metre ruler.

(a) Length of hedge in one section _____

(b) Number of sections _____

(c) Total length of hedge in the flower garden _____

(d) If it takes him 5 minutes to cut 5 metres, how long will it take to cut all the hedges if he didn't need to stop?



Flower Garden Diagram

▶▶ Now go to the Time Garden ▶▶

Are you remembering to count the seats, bins and entrances?

The Time Garden



In the time garden each pillar has words on it.
Find the pillar with the words TIME FLIES.

(a) What direction is this pillar **from** the centre pillar?

Hint:

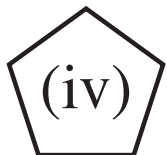
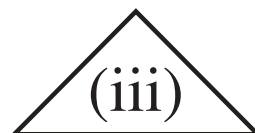
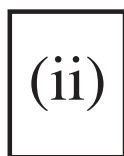
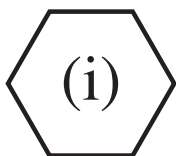
Walk to the centre pillar and you will find
compass points in the grass to help you.

Circle one of these: N NE E SE S SW W NW

(b) How many bricks were used to build the pillar which says 'time flies'?

_____ bricks

(c) What different 2D shapes can be found on the sandstone top?
Tick the shapes you find:



▶▶ The next activity is also in the Time Garden ▶▶

Are you keeping your tally of garden seats, bins and entrances?

The Time Garden



(a) Find the pillar with the words HASTEN SLOWLY. There are numbers engraved into brass above these words. What is the total of all the numbers? Use the space below to write down the numbers.

TOTAL _____

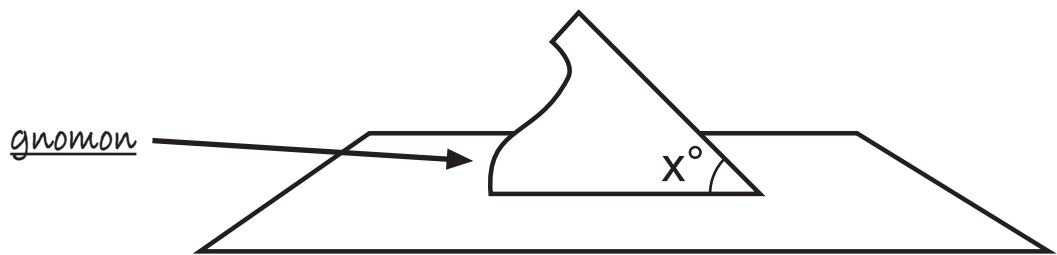
(b) What direction is this pillar from the centre pillar?

Hint:

Walk to the centre pillar and you will find compass points in the grass to help you.

Circle one of these: N NE E SE S SW W NW

(c) Find the pillar with the words I GIVE YOU SUMMER HOURS. Estimate the angle 'X°' of the gnomon as shown on the diagram.



Circle one of these:

0°-20°

20°-40°

40°-60°

60°-90°

New word:

✓ A gnomon is the name given to the projecting piece on a sundial that shows the time by the position of its shadow.

▶▶ Leave the Time Garden through the entrance you came in and go to the Rock Garden. ▶▶

Are you continuing with your data collection?

The Rock Garden



ACTIVITY
10
ACTIVITY

(a) The wall behind the seat would be a nice place to grow honeysuckle but Basil needs to put in a wooden trellis for it to grow up. What height should it be if it is to reach from the ground to the top of the wall?

Hint: Use your metre ruler to measure one metre, then count the bricks.

_____ metres

(b) Basil wants to remove nine of the paving slabs in the rock garden. Each slab weighs 15kg. Basil can carry 25kg in his wheelbarrow at any one time. How many journeys will he have to make to remove all the slabs?

_____ journeys

(c) Basil now needs to put stones into the places where the paving slabs were. The area uncovered by the slabs is 5m^2 . Each bag will cover an area of 0.5m^2 , so how many bags does he need to buy?

_____ bags

(d) Basil has £15 left to spend and each bag of stones costs £2. Is this enough for him to buy all the bags of stones he needs? Circle the answer.

Yes

No

(e) A bag of stones weighs 25kg. Can he carry a bag to the rock garden in his wheelbarrow? Remember the information that was given in part (b). Circle the answer.

Yes

No



New word: ✓ A Trellis is a flat, criss-cross wooden structure for climbing plants.

▶▶ Now go to The Amphitheatre ▶▶▶

Remember to look out for garden seats, bins and entrances.