

Irregular Shapes

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AREA AND ESTIMATION OF IRREGULAR SHAPES
(CAN ALSO BE USED FOR LENGTH AND PERIMETER STUDIES).

Teacher Notes and Curriculum Information

Links to The Northern Ireland Primary Curriculum.

Language and Literacy:

By encouraging children to talk and write about their own design and respond to that of others using appropriate language.

Mathematics and Numeracy:

By exploring shape and space, position and movement.

Exploring different ways of solving problems by exploring shape and patterns occurring in the environment.

The World Around Us:

By encouraging children to represent their learning visually.

Develop their understanding of the visual elements of shape and space to communicate their ideas.

Use a range of materials and processes such as three-dimensional construction, selecting which is appropriate to realise personal ideas and intentions.

Evaluate their own and others' work and how it was made, explain and share their ideas, discuss difficulties and review and modify work to find solutions.

The Arts:

By observing, recording and representing their work through art and design.

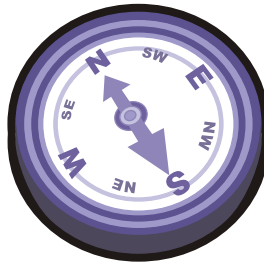
Trundle Wheels

(During Visit)



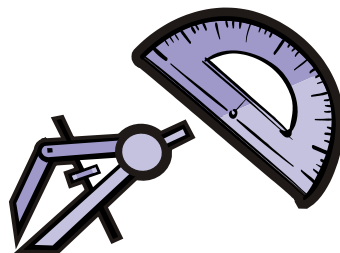
Compass

(During Visit)



Tape Measure

(During Visit)

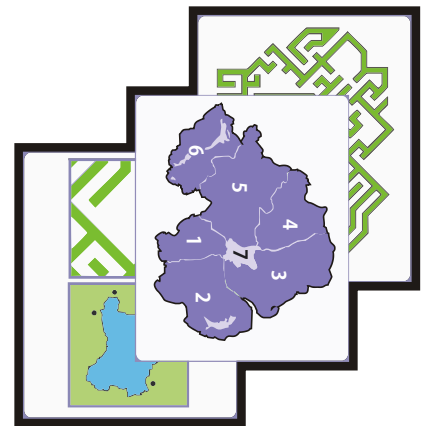


Drawing & Measuring

Equipment

(Pre & During Visit)

RESOURCES



Resource & Work Sheets

(Pre Visit)

Aims:

To estimate and measure the area of irregular shapes related to the Carnfunnock Maze.



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Class or Group Discussion:

Step One

Children examine the diagram of the Carnfunnock Maze and the hedge border surrounding it.

Questions:

- What shape is the border? (Rectangle) The maze itself? (Polygon)
- Assuming it is to scale, how could we calculate the area enclosed by the border?
Prompt: (Length x Breadth = Area).
- Assuming it is to scale, how could we calculate the area enclosed by the maze itself? (By dividing it up into regular shapes - squares, rectangles or triangles)
Prompt: ($\frac{\text{Base}}{2}$) x Perpendicular Height = Area (triangle).

Step Two

Children examine the diagram of the Lough Neagh part of the Carnfunnock Maze.

Questions:

- What shape is the border of Lough Neagh in the diagram? (Polygon).
- If we knew the length of the hedges surrounding 'Lough Neagh' in the Maze, could we use that information to calculate its area?
- How? (divide into regular shapes).

Step Three

Children examine the map of Lough Neagh. (Worksheet 3)



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Questions:

- In the same way that we calculated the area of the Lough Neagh part of the Carnfunnock Maze, could we calculate the area of the lake itself?
- What information would we need?
- How could we best divide the shape of the lough to make it easier to measure?

Challenge:

To estimate the area of the Carnfunnock Maze, and of Northern Ireland.

Discuss:

- How could we measure the maze itself? (Area, length of internal pathways, length of external pathway)
- What measuring instruments should we take? (Tape measure, trundle wheel)
- How can we record our results?

During Visit:

Resources:

Trundle wheels, tape measures, outside protractors, any equipment the children decided upon pre-visit.

Activities:

- Children measure the perimeter of the border and record their findings, either in one go or by small groups measuring a part of the border each.
- Measure the perimeter of the Lough Neagh part of the maze and record findings.



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Post Visit:

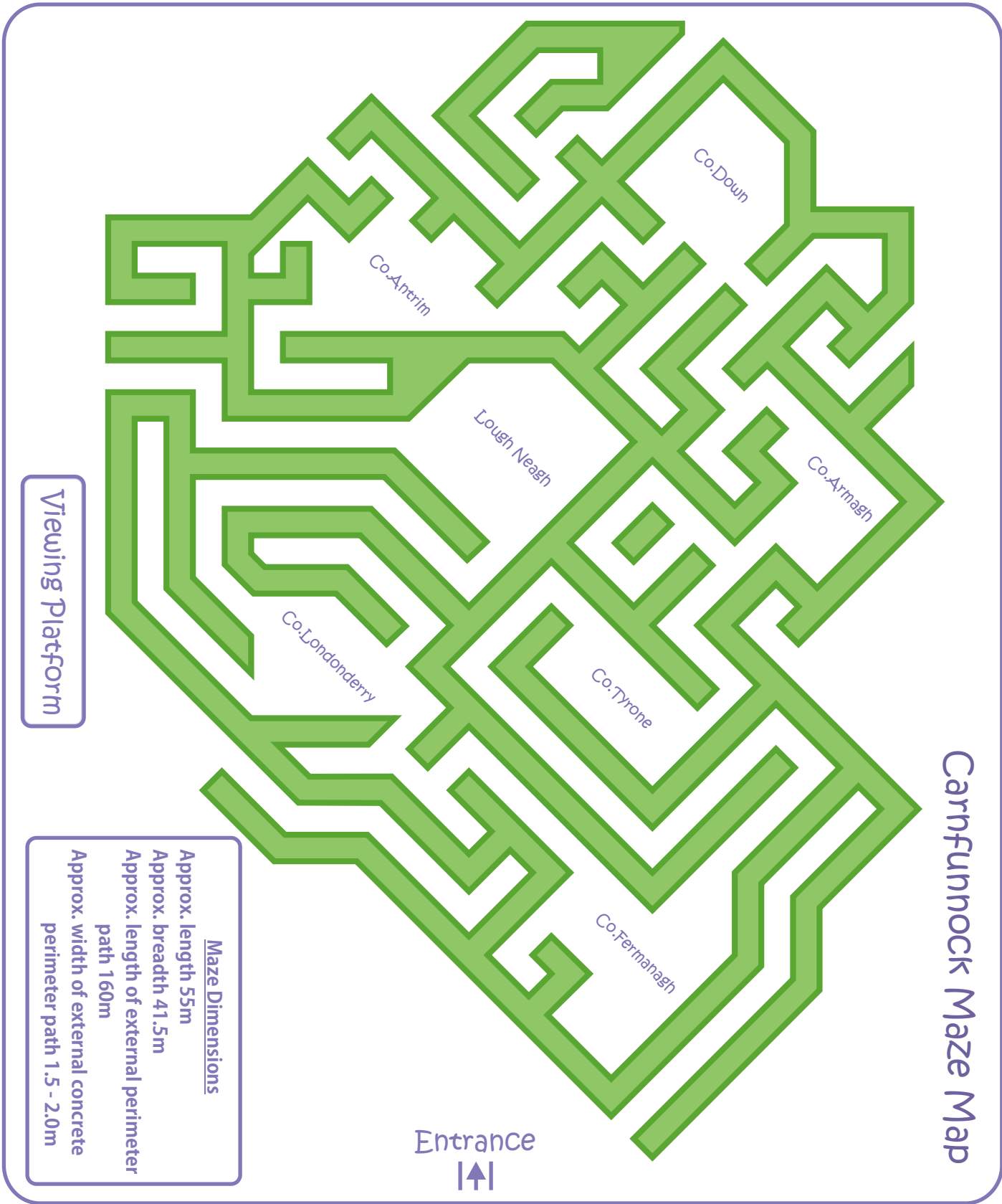
Activities:

- Children use their findings to calculate the approximate areas of the Carnfunnock Maze, Lough Neagh and Northern Ireland.
- Children to write a simple report on the activity from start to finish, explaining how they went about the task, and what measurements they used. If they use diagrams and photographs, this work can be used for display.

Differentiation:

Suggestions for Differentiation:

- Children to calculate Lough Neagh's area as a ratio/fraction/percentage of the rest of Northern Ireland. Is the ratio of this in the maze an accurate one?
- Children to divide the areas into squares and count squares for approximate area.
- Children to find and name polygons within the maze diagram.
- Children to calculate length and perimeter rather than area.



55m

Carnfunnock Maze Map

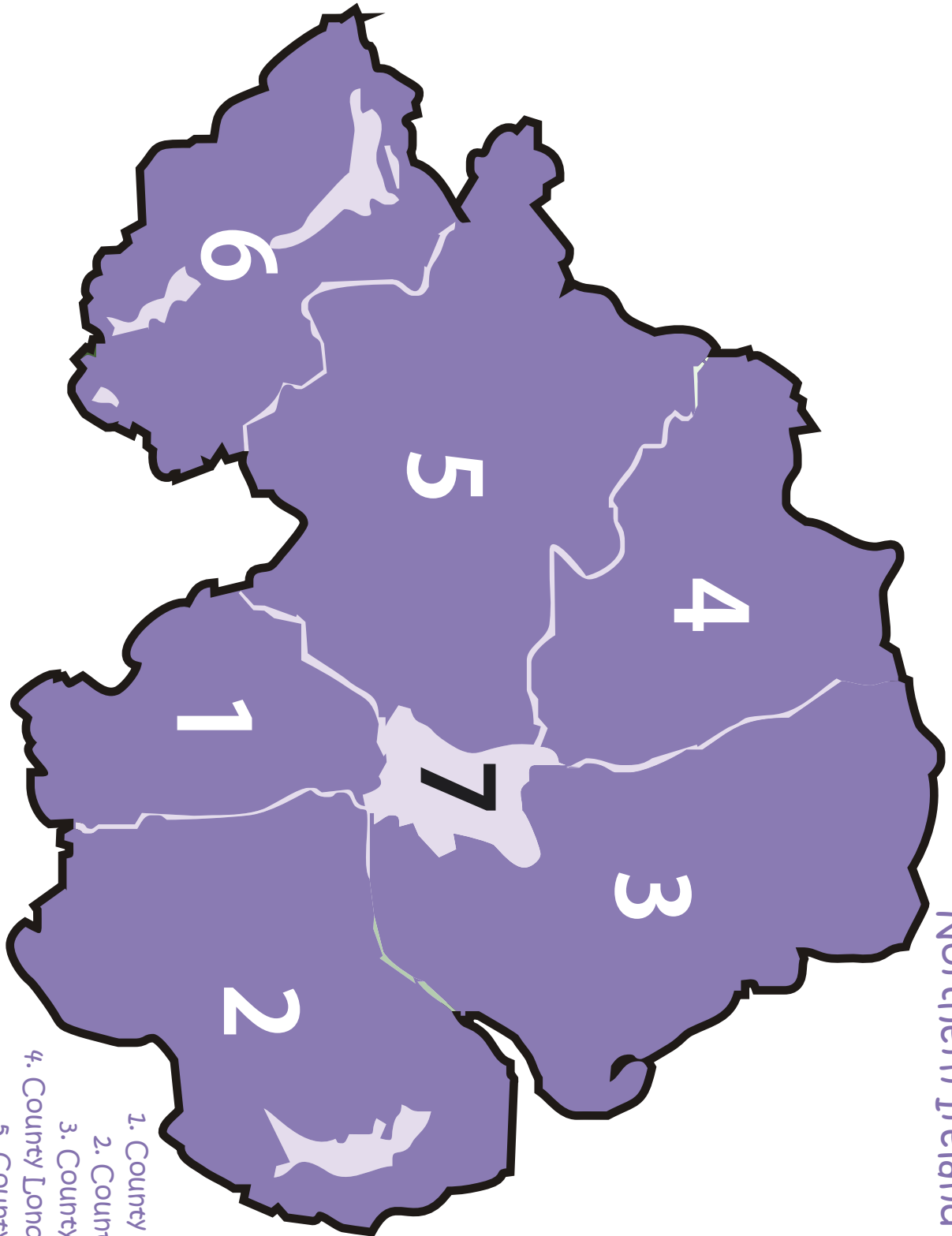
41.5m

Viewing Platform

Maze Dimensions
 Approx. length 55m
 Approx. breadth 41.5m
 Approx. length of external perimeter path 160m
 Approx. width of external concrete perimeter path 1.5 - 2.0m

Entrance



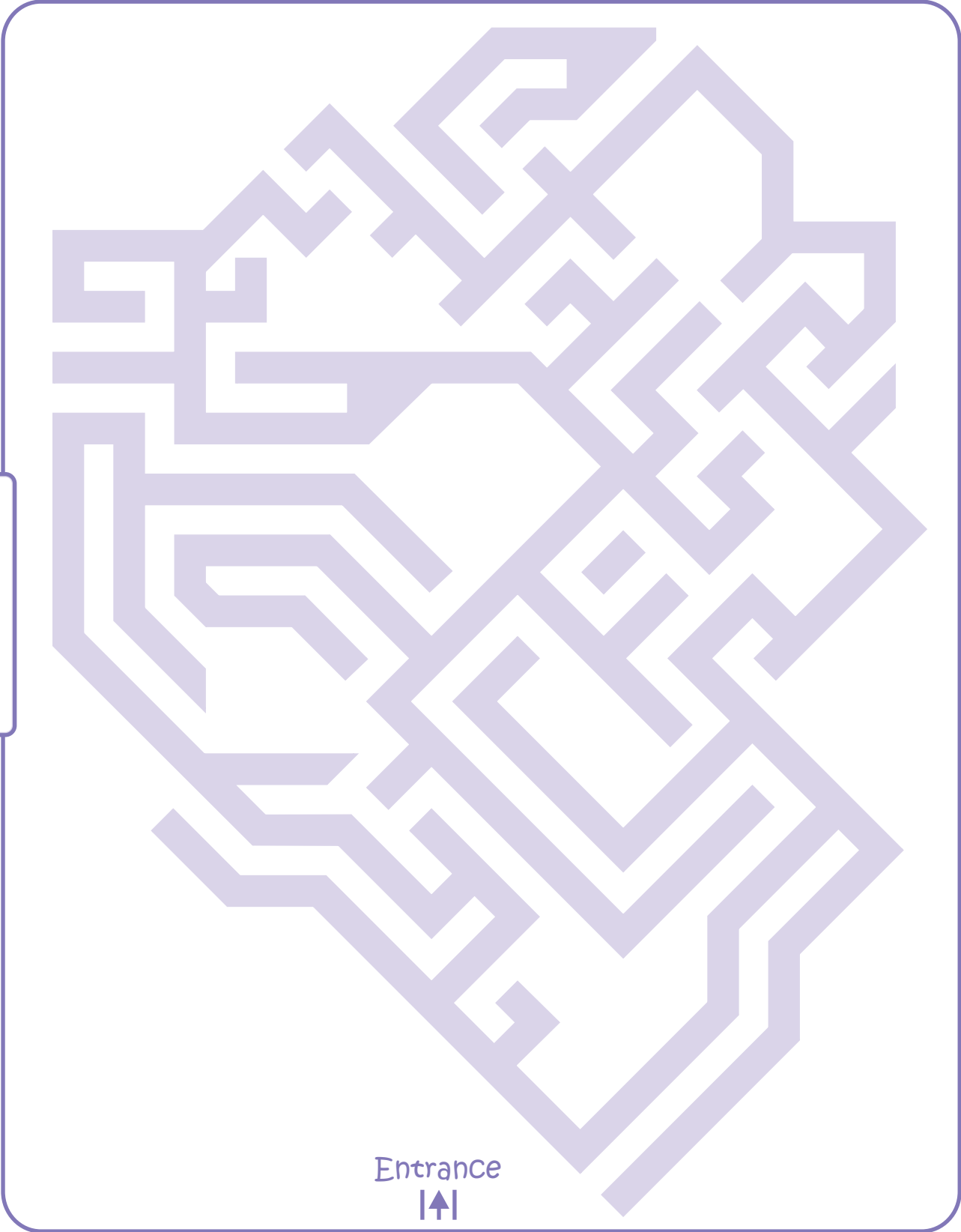


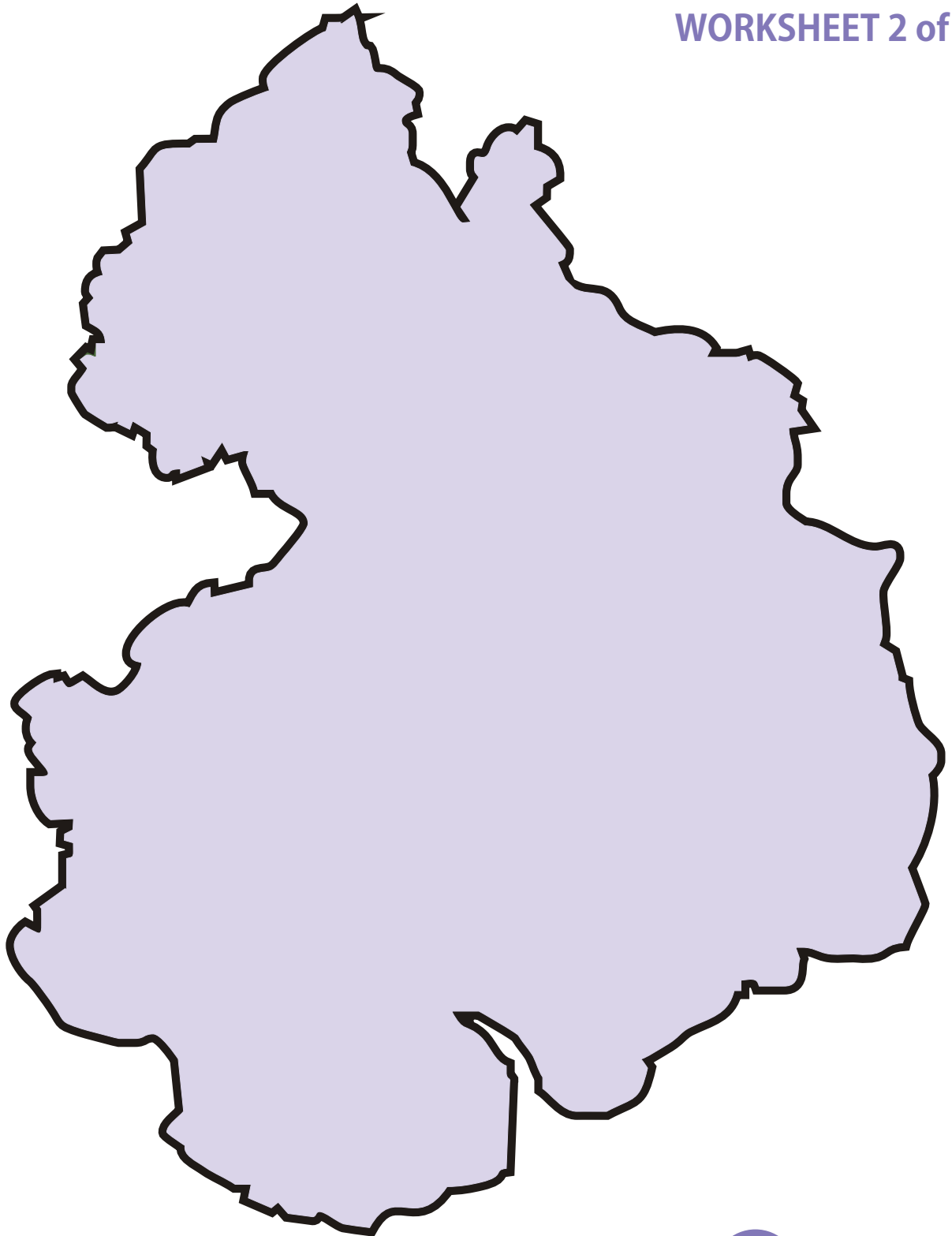
Northern Ireland Map

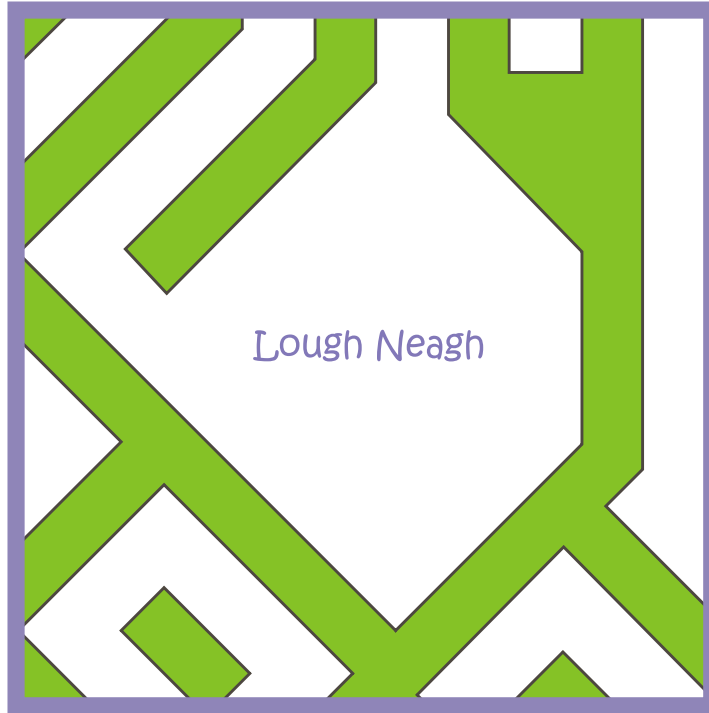
1. County Armagh
2. County Down
3. County Antrim
4. County Londonderry
5. County Tyrone
6. County Fermanagh
7. Lough Neagh



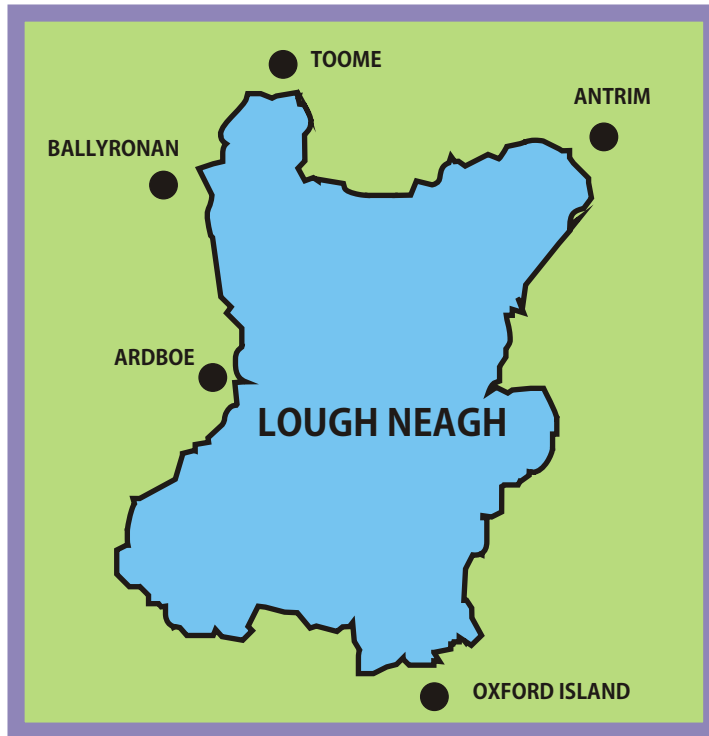
Viewing Platform







CARNFUNNOCK MAZE - Lough Neagh



MAP

for illustrative purposes only (For accuracy please source a scaled map)