

Activity Card 8

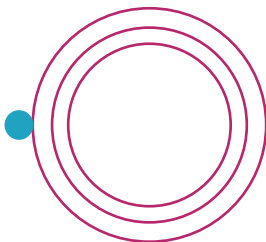
Grianan of Aileach

The fort at Grianan Aileach was built in the distant past. Dedicated to the sun god, it sits silent on a hill overlooking the River Foyle in Donegal. One of the legends from the site tells of a band of ancient warriors asleep inside the hill. All that remains of the fort today are a circular inner stone wall and the track of some of the earth ramparts that surrounded it.

- In this activity, you have the opportunity to investigate circles, how to construct them and the special relationship between the diameter and the circumference in every circle.
- For the first section of the activity, you will need four or five different sized circle templates, shapes or tiles. You will have to measure their diameters and circumferences. If you measure these to the nearest cm, that will be quite accurate enough.
- Draw a table with two columns. In one column, write the diameter and beside this write the circumference for the same circle. Did you notice any relationship between them?

(Hint: If you multiply each of the diameters by the same small number, you will get an answer very close to their circumference.)

- Now test your results with some more circles. Can you predict the size of the circumference approximately if you know the diameter?
- Can you use Logo to draw three circles, one inside the other (**concentric**) like the diagram below?



This is the starting position for the turtle and the commands to draw the outer circle are:

repeat 20[forward 15 right 18]

How do you think the commands will change to draw the two smaller circles?

You will need to create another short list of commands to change the position of the turtle to draw each of the circles, otherwise you will leave a track. Remember to use **penup** and **pendown**.

- The stone wall of the fort has a doorway and on each Winter Solstice day the sun shines directly through it and reaches the wall on the other side. Could you use Logo to draw the path of the sun's light?
- Using what you know about diameters and circumferences and the information from the **repeat** command you used to draw the largest circle, could you calculate an approximate distance for the diameter of the circle and then draw it?