



CASTLETOWN

HOUSE, COURTYARD CAFÉ, PARKLANDS, EVENTS & CONFERENCE CENTRE

Maths Trail

5TH & 6TH CLASS



A Note for Teachers and Guides

Each student will need a measuring tape and a pencil.

Thanks to the 6th Class pupils of Primrose Hill National School, Celbridge, 2011, who helped us design this Maths Trail.

The Main Entrance Steps

Balusters are upright rounded, square or vase shaped supports especially for the rail of a staircase balustrade.

How many balusters are there?

Underline the words that describe the lines the steps create:

PERPENDICULAR

PARALLEL

INTERSECTING

STRAIGHT

Area is length x width. Estimate the area of the first landing platform on the steps. (Use your stride to estimate a metre.)

Now, using your measuring tape, calculate the exact area.

What was the difference between your estimate and the exact measurement?

Choose any 4 stone slabs used to make these steps. Measure the length and width of the 4 you have chosen.

Find the average length of the 4 slabs.

Find the average width of the 4 slabs.

Measure the length of any 2 slabs from the top steps and any 2 slabs from the bottom steps.

TOP

BOTTOM

Are all four the same length?

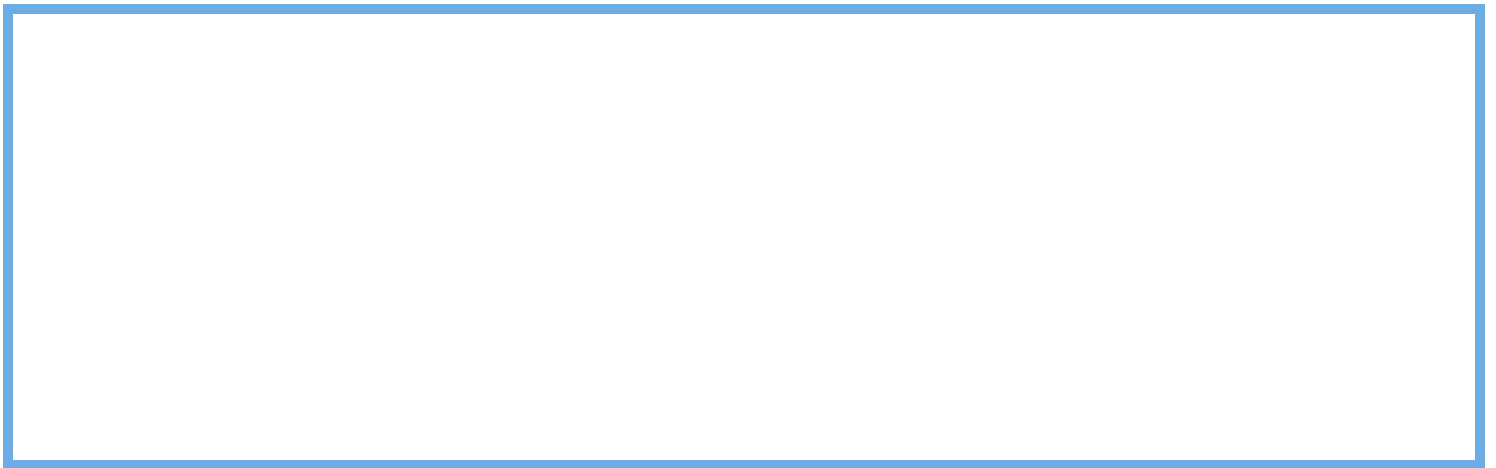
What does that tell you?

Look at the line of windows along the first floor of Castletown House. The windows are divided into small glass sections. This is the Georgian style of architecture.

Write a mathematical multiplication sentence to show how you calculate how many glass panes are in a first floor window.



Now calculate how many small glass panes are in ALL of the windows on the first floor



Lady Louisa was having a party on the first floor. She hired a man to clean the windows INSIDE and OUTSIDE on the first floor.

It took the man 30 minutes to clean 15 panes of glass.

How long did it take him to clean ALL the windows on the first floor if he needed 5 minutes to move his ladder from one window to the next and he took a 20 minute lunch break before he went inside to do the interior glass panes?

Spot the ODD ONES OUT on the row of GROUND FLOOR windows.

How many are there?

What makes them odd?

Look at the front door. It is made up of smaller rectangular panels

How many rectangles altogether in the front door? Don't forget to add in the door itself!

Examine the doorbell on the left side of the door.

Measure the circumference of the outer circle.

Measure the circumference of the circular PRESS button.

Express one as a fraction of the other.

Work it out and express it in its LOWEST TERMS.

A triangular pediment is a low-pitched triangular gable on the front of some buildings in the Greek style of architecture.

Stand back from the front steps and take a look at the facade (front) of the house.

How many, if any, triangular pediments can you see?

Why are triangles often used in house building, particularly in roof construction?

Looking at the facade again, outline the features you see where symmetry was used in the house .

The Ionic Columns

Ionic columns are from the Classical Greek and Roman architecture styles.

DID YOU KNOW...The upright columns are meant to portray the beauty and strength of the male body. They are also symbols of academia and learning.

How many columns are there?

Multiply that number by 2 to include the columns on the opposite side of the house.

Estimate, in centimetres, the circumference of the base of one of the columns.

Using your measuring tape, measure the circumference at the base of any two columns.

The height of an ionic column is approx 9 times the diameter of the base.

Using this information, and the formula $c \div \pi = d$ (c =circumference, $\pi=22/7$, d =diameter)...

...find the diameter of the base of the column.

Find the estimated height of the column.

Pretend the column is the trunk of a tree growing in Castletown House gardens. Estimate the age of this tree.

A tree's trunk grows in size by 2.5cms each year approx.

Divide the circumference of the tree by 2.5 to see how many years old your tree is.

Do you think, going simply by eye, that the columns are the same circumference all the way up? Write yes or no below.

An alcove is a recessed feature usually framed by columns.
Is each alcove framed by a pair of ionic columns? Write yes or no below.

Express the width of an alcove to the width of the gap between two columns (use centimetres).

Express it in its lowest terms.

In classical architecture, there is a relationship between the height of the column and the width of the colonnade (the curved section with columns on either side of the main block of the house).

Circle which of the following you think is true.

The height of a column is equal to HALF the width of the colonnade.

The height of a column is equal to ONE THIRD the width of the colonnade.

The height of a column is equal to ONE QUARTER the width of the colonnade

