

[Year 9 Sets 1-3: Enrichment/Extension activities.](#)

Below is a link to a website that will provide you with loads of different extension or enrichment tasks.

<https://nrich.maths.org/9196>

The initial page looks like this;

The screenshot shows the NRICH website interface. At the top, there are navigation links for 'Primary Students', 'Secondary Students', 'Early Years', 'Primary Teachers', and 'Secondary Teachers'. A search bar with 'Search NRICH' and a 'Go' button is also present. Below the navigation is a dark banner with the NRICH logo and icons for 'Events', 'Donate', 'Roadshow', and 'PD'. The main heading is 'Topics in Secondary Mathematics'. Below this, there is a paragraph: 'Do you enjoy thought-provoking questions? If so, this is the place for you. These collections of activities are ideal for developing your subject knowledge and problem-solving skills.' There are four topic cards: 'Number' (flamingos), 'Algebra' (seagulls), 'Geometry and Measures' (dandelion), and 'Handling Data' (leaf). At the bottom, there is a link to 'Short Problems' with a small image of a pink flower.

From here you can click on any of the four strands of maths: Number, Algebra, Geometry and Measure or Handling Data. This will then take you to a new page with a selection of different topics. Select a topic, for example Transformations from the Geometry and Measure strand.

Geometry and Measures

The screenshot shows a grid of topic cards under the heading 'Geometry and Measures'. There are ten cards in two columns. Each card has an image, a title, and a brief description. The cards are: 'Angles, Polygons and Geometrical Proof - Stage 3' (colorful squares), 'Angles, Polygons and Geometrical Proof - Stage 4' (rope on a post), 'Construction' (bamboo tower), '3D Shapes' (colored balls), 'Perimeter, Area and Volume - Stage 3' (modern building), 'Perimeter, Area and Volume - Stage 4' (curved roof), 'Transformations' (orange object), 'Vectors' (compass), 'Pythagoras' Theorem & Trigonometry' (dandelion).

This will then open a new page with different tasks. These tasks vary in difficulty and are also given an age range, see below.

Transformations



Reflecting Squarely

Age 11 to 14 ★

In how many ways can you fit all three pieces together to make shapes with line symmetry?



Shady Symmetry

Age 11 to 14 ★

How many different symmetrical shapes can you make by shading triangles or squares?



Mirror, Mirror...

Age 11 to 14 ★

Explore the effect of reflecting in two parallel mirror lines.



...on the Wall

Age 11 to 14 ★★

Explore the effect of reflecting in two intersecting mirror lines.



Attractive Rotations

Age 11 to 14 ★

Here is a chance to create some attractive images by rotating shapes through multiples of 90 degrees, or 30 degrees, or 72 degrees or...



Robotic Rotations

Age 11 to 16 ★★

How did the the rotation robot make these patterns?



Transformation Game

You can have a go at any of the task on here as an extension/enrichment task. They will give you details on the task, possibly link to files that you can download to use, they will also provide some help to get started with in the menu section on the left of the page (see image below). The majority also include a section on the left menu for the solutions.

Hide Menu

Problem
[Getting Started](#)
[Solution](#)

RESOURCES
[Jumbled](#)

HINTS to help you

ANSWERS

You may also like

Frieze Patterns in Cast Iron
 A gallery of beautiful photos of cast ironwork friezes in Australia with a mathematical discussion of the classification of frieze patterns.

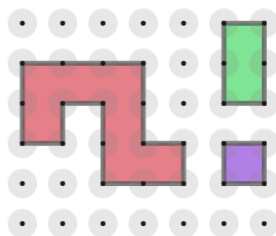
The Frieze Tree
 Patterns that repeat in a line are strangely interesting. How many types are there and how do you tell one type from another?

Friezes
 Some local pupils lost a geometric opportunity recently as they surveyed the cars in the car park. Did you know that car tyres, and

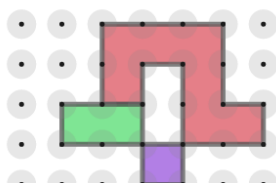
Reflecting Squarely

Age 11 to 14 ★

The three pieces below can be fitted together to make shapes with at least one line of symmetry.



The vertices of each piece must lie on grid points, and you must not overlap two pieces.



The pieces must be placed edge to edge, so this is not allowed.