

TE PAEPAE O AOTEA MATHS BADGE: 2-D DESIGN

SECTION A		SECTION B	
Select and complete three out of the five in Section A		Select and complete three out of the six in Section B	
1	Investigate perspective drawings and optical illusions. Collect 5 examples of these and design one of your own. (Research Maurits Escher, Leonardo da Vinci)	1	On a grid, draw a design for a large mural (wall sized) that uses geometrical shapes. Analyse and explain how your design would be enlarged to be ready for painting, considering the space available.
2	Devise an interesting design for wallpaper, fabric, tiles or wrapping paper using 2-D geometrical shapes. Tessellate your design onto A4 paper, with your choice of transformations, rotations and/or reflections.	2	Research Fibonacci and show how his ideas apply to the natural environment. Communicate your findings clearly and concisely using text and drawings.
3	Investigate tangrams and design and make your own. Cut out the pieces and use them to create a variety of shapes. Compose a display of all the shapes you can make and take photo's for your Maths Badge.	3	Use the "Explain Everything" app to explain in clear terms the properties of each of the following common 2-D geometrical shapes: square, rectangle, parallelogram, rhombus, trapezium, kite, triangle, pentagon, hexagon, octagon, decagon.
4	Investigate stained glass windows and apply this knowledge to developing an original design using 2-D geometrical shapes. Construct a 3-D sized version of your window using art materials (black paper, cellophane, PVA, greaseproof paper, etc)	4	Imagine your local council has decided to demolish some old buildings near your school. The land area for redevelopment is 1 hectare. Design a site plan for a recreational park, which is suitable for people of your age. Using a scale of 1:1000, show all the buildings and activity areas. Include a legend.
5	Design and construct an interesting and original jigsaw puzzle with a mathematical focus where every piece is a 2-D geometrical shape. (Each piece must adjoin the others without linkages)	5	Research symbols that were used in a particular culture such as Egyptian, Celtic, North American Indian, Mayan, Aztec, Maori, etc. Select one of these cultures and design an original art print or rubbing from a block. You may use PVA glue, string, cardboard or a combination of these. Explain some of the symbols used in your design.
		6	Examine designs for some of the following handicrafts: patchwork, quilts, macramé, embroidery, tapestries and knitting. Analyse the way the patterns are recorded for each of these handicrafts and create and record an original pattern of your own. Complete a sample of your work, using your pattern.

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