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| 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. |