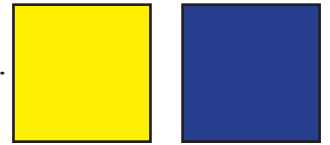# 3D Geometry

Activity 1 - Traveling From 2D to 3D

Shapes in two dimensions are flat. They only have two defining measures: length and width. A square is a two-dimensional or 2D shape.

Shapes in three dimensions have three defining measures: length, width and height. A Cube is a three-dimensional or 3D shape. A cube has six sides, called faces. Each face is actually a square. Take a look at a die, which you use to play games. Count the faces on the die, and measure the sides to check if they are indeed squares.

If you unfold a cube, it becomes flattened, and you will be able to see the 2D squares which make up the cube. The flat unfolded shape, made up of the six squares, is called the net. What does the net of a cube look like? You're about to explore that!

For this activity you will need: graph paper, a piece of cardboard, a pencil, a ruler, tape and scissors.

Activity Instructions:

- Draw six equal squares on a piece of cardboard.

- Cut the squares out. These squares will be the faces of the cube. Colour in your squares if you like.

- Arrange the squares in such a way that one or more of their sides are connected together, in order to make a net for the cube. For example, try the arrangement to the right.

- Tape the squares together with small pieces of tape. Now try folding the net into a cube. Does your arrangement work? If so, great! If not, try a different arrangement and start again.
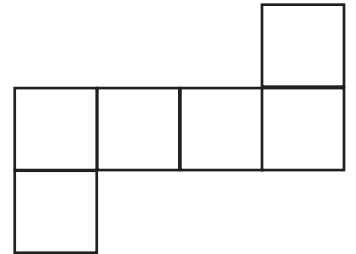
Activity Question: There are many different nets of six squares which can make a cube when folded. How many different nets can you find? Try to find all the possible nets. On your graph paper, draw the different nets as you discover them.

Can you believe THIS is math?