# 2D Shapes and 3D Patterns Home Information Sheet

## Second Level (c)

*MTH 2-16a Having explored a range of 3D objects and 2D shapes, I can use mathematical language to describe their properties, and through investigation can discuss where and why particular shapes are used in the environment.*

*MTH 2-16b Through practical activities, I can show my understanding of the relationship between 3D objects and their nets.*

*MTH 2-16c I can draw 2D shapes and make representations of 3D objects using an appropriate range of methods and efficient use of resources.*

## Over the next few weeks we are going to be learning to:

- Know and understand the terms face, edge, side, corner, angles, vertices, diagonals, radius, diameter, circumference, scalene, isosceles, equilateral, right-angled
- Know that the faces of solid shapes meet to form edges, and edges meet at a vertex
- Investigate and discuss the relationship between the radius and diameter of a circle
- Investigate and discuss the properties of triangles, quadrilaterals and polygons using appropriate vocabulary
- Investigate and discuss the properties of 3D shapes using appropriate vocabulary
- Investigate and discuss where and why particular shapes are used in the environment
- Understand the relationship between a 3D shape and its net
- Analyse other 3D shapes and create nets for them
- Use methods and drawing instruments (e.g. ruler, protractor, compasses) accurately to draw simple 2D shapes
- Create circle patterns using compasses
- Investigate the rigidity property of triangles in model making
- Appreciate the differences between skeletal and solid models
- Make skeletal and solid models of common 3D shapes using a range of resources
- Sketch common 3D shapes on squared and triangular isometric paper

## Here are some ideas of how you can help me at home!

**Tessellate the rectangle** *5 cm squared paper, cm squared paper* Ask children to draw 10 rectangles (1 square × 2 squares) on 5 cm squared paper and cut these out. They explore how many different ways they can tessellate the rectangles and record the successful tessellations on cm squared paper.

**Wallpaper design** Ask children to create a design for wallpaper which involves shapes which have been rotated or reflected. Back in class they compare and discuss

their designs.

**Who uses it?** Ask children to find out or think about which jobs require a good knowledge and understanding of the different aspects of shape. They make a poster to show their ideas. Back in class they discuss and compare the ideas on their posters.

Here are some websites that you may find useful to use with me!

Sort the Shapes - http://www.primaryresources.co.uk/online/memory.html

My Own Net - http://illuminations.nctm.org/ActivityDetail.aspx?ID=70\

Polygon Playground - http://www.mathcats.com/explore/polygonplayground.html