**Strand:** Spatial sense and geometric reasoning  
**Number Band:** Middle Years  
**Standard:** 4  
**Year Level:** 7

**Key Idea**
Students explore and analyse features in their immediate and extended environment in geometric terms. They compare perspectives of special sense and geometric reasoning in order to understand different human interactions with their environment. [Id] [In] [T] [KC1]

Students develop and extend their capacity to solve problems in multi-layered and abstract ways in order to produce accurate maps, graphs and models. [T] [C] [KC6]

Students analyse and understand the uses and purposes of flips (reflections), slides (translations), rotations and dilations to explore geometric relationships and alternative preferred possibilities in the physical world. [F] [T] [KC1] [KC6]

**Outcome**
4.12 Identifies characteristics and properties of 2-D and 3-D shapes and understands how these have influenced the built environment [In] [KC1]

4.13 Identifies represents and justifies one and two step geometrical transformations [T] [C] [KC1]

4.14 Represents and uses location maps, pathways diagrams and network diagrams to describe current and possible future characteristics of the physical world. [F] [T] [KC1] [KC6]

**Task/Activity**
Design 4cube houses using multifix blocks.  
Draw the shapes in 3-D.  
Cost the houses and produce accurate calculations.  
Develop an advertising brochure.  
Draw a map of the housing estate you have created.
Examples of evidence towards achievement of outcomes
4.12 Build appropriate shapes and record in 3-D diagrams. Develop 3-D diagrams into house pictures.
4.4 Discuss transformations to produce further designs.
4.14 Develop map of housing estate.

Task

Housing Estate
1. Design as many different four cube houses as you can.
2. Draw each of the designs showing three dimensions.
3. Work out the construction costs of each design on the following basis
   $10000 for each (unit) square of land covered
   $40000 for each square of external wall
   $6000 for each square of roof
   $1000 for each pillar
4. Develop an advertising brochure which shows
   • The name and logo of your building company
   • All your designs – the basic design must be obvious and embellishments added to develop the ‘look’ of the house
   • At least 10 houses of different designs as they might appear in the housing estate – remember to choose a name for this estate.
   • Use persuasive writing to advertise each of the houses in your brochure.
   • Include the cost of each house.
5. Draw a map of the housing estate showing where to find an example of each house style.