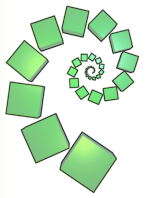# Number 1 Penta Place

Penta people, the Pentigles, always build their houses from **five square rooms on one level - ground level.**

The houses can be designed in a variety of shapes, but a room **must be joined to at least one other room by one wall.**

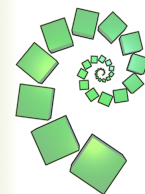Here is a design drawing for a Penta house, a view from above:

Here is another one:

What you have to do:

Try to find all possible shapes the Pentigles can build their homes. Use multilink cubes.
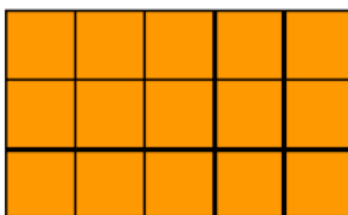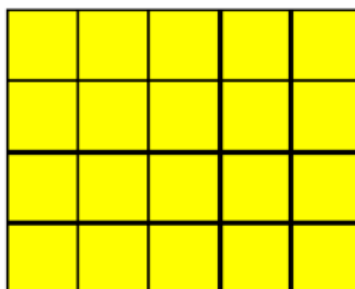
New homes are being built in Penta Place.

The homes are built right next to each other and are arranged and fitted together to create rectangles.

a. **Use three of the Penta house shapes that you created and fit them together to form a 3X5 rectangle like this one.**
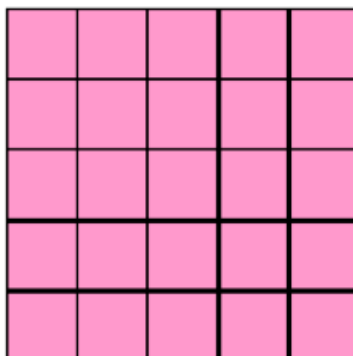

b. **Can you make other sized rectangles using three of the Penta shapes?**
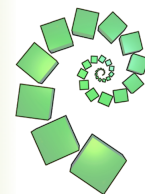
c. **Try to find four of the Pentigles' house shapes to make a larger rectangle like this?**

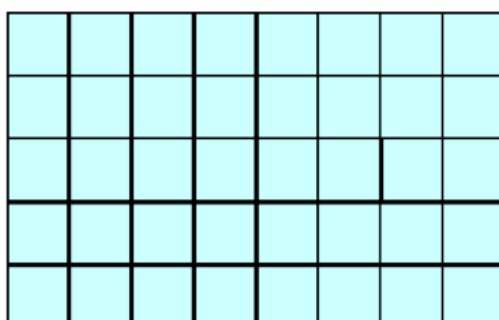**d.** **Here we have a 5 by 5 square. Use five of the Penta houses to construct a similar square.**

Number 3 Penta Place

a. Now, try to find six of the Penta houses and arrange them to fit into a 5X6 rectangle like this one.

b. This arrangement might require a more work, but can you find eight of your Penta designs to recreate a 40 room unit arranged in an 5X8 rectangle?

By now you should have managed to find all 12 of the Penta shapes.

c. This large rectangle is made from 60 rooms. **Here is a very difficult challenge! Can you use all 12 Pentomino shapes to make a similar rectangular arrangement.**