

**Pentominoes**

A shape made from **five** identical squares joined edge to edge to make a single shape is called a **pentomino.**

Here are examples of two pentominoes:

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**INVESTIGATION A**

Use some multilink cubes. Can you find all the **different** ways to join five cubes together. Remember the shape that you make must never be taller than one cube. Check that you don’t have any shapes which are the same as another when you rotate it or flip it over.

For example the following shapes are exactly the same.

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When you are satisfied that you have found all the pentomino pieces draw them on squared paper. It is a good idea to make the side of each of the individual squares 2cm x 2cm. If you want to do more investigations with pentominoes ask your teacher to photocopy your pentomino pieces onto a piece of card.

**KS2B**

**Visual/Diagram Problems**



**Pentominoes**

**INVESTIGATION B**

Choose any three pentominoes.

Can you use them to make a rectangle?

How many different three-piece rectangles can you make?

Explore 4 or 5 piece rectangles.

**INVESTIGATION C**

Each pentomino can be thought of as a letter of the alphabet. Can you make 20 words containing at least 4 letters each from the pentomino letters?

**INVESTIGATION D**

All of the pentominoes have exactly the same area.

Investigate the perimeters.

**INVESTIGATION E**

Sort a set of pentominoes according to:

* number of lines of symmetry;
* whether or not they will fold to make an open box.

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**Visual/Diagram Problems**



**Pentominoes**

**INVESTIGATION F**

By arranging the 12 pentominoes together edge to edge, what is the largest area that you can enclose?

**INVESTIGATION G**

This tessellation has been made from one of the pentominoes.

The pentomino has not been turned in the tessellation.

Investigate other pentominoes which tessellate without turning.

**INVESTIGATION H**

**Golomb’s Game** (2 players)

You will need one set of pentominoes and a copy of the Golomb’s Game baseboard.

Each player in turn places a pentomino piece selected from the set of 12 pieces anywhere on the board. The last player to be able to do so wins the game. No pieces may overlap. Can you develop a winning strategy?

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**Visual/Diagram Problems**



**Pentominoes**

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**Golomb’s Game Baseboard**

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**Resource Sheet**



**Pentominoes**

These are all 12 pentomino pieces. The size of each square is 2cm x 2cm.

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**Visual/Diagram Problems**

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