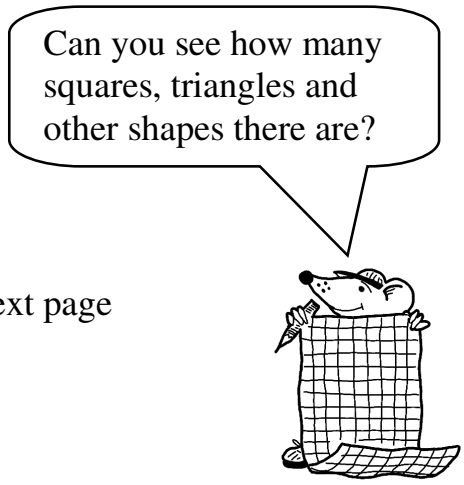
4502-01 Visualise 3-D objects and make nets of common solids

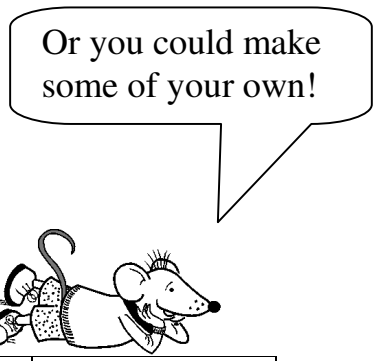
1. Find some interesting boxes such as chocolate boxes, tissue boxes or orange drink cartons. Carefully undo them and lay them out flat.

Draw round them on a large piece of paper.
Count the number of faces.



2. Make a cuboid from straws or from card. The next page shows a net for a cuboid if you need one.

How many faces does the cuboid have?
How many edges does the cuboid have?
How many vertices does the cuboid have?



3. Look at some different **pyramids**.

Count the number of edges on the base, the number of faces, the number of edges altogether and the number of vertices.

Fill in the table:

Name	Edges on base	Faces	Edges	Vertices
Tetrahedron				
Square based pyramid				
Pentagonal based pyramid				
Hexagonal based pyramid				
Octagonal based pyramid				

What do you notice about the number of faces and vertices on a pyramid?
What do you notice about the number of edges on the base and the number of faces?
What do you notice about the number of edges on the base and the number of vertices?
What can you say about the number of edges on the base and the number of edges altogether?

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2. A cuboid has six faces, twelve edges and eight vertices.

3.

Name	Edges on base	Faces	Edges	Vertices
Tetrahedron	3	4	6	4
Square based pyramid	4	5	8	5
Pentagonal based pyramid	5	6	10	6
Hexagonal based pyramid	6	7	12	7
Octagonal based pyramid	8	9	16	9

On a pyramid the number of faces and vertices are the same.

On a pyramid the number of faces is one more than the number of edges on the base.

On a pyramid the number of vertices is one more than the number of edges on the base.

On a pyramid the number of edges altogether is twice the number of edges on the base.