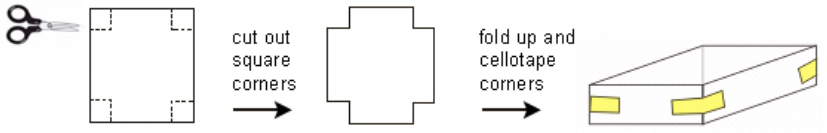
Constructing different shaped boxes

This task requires is about making boxes from grid paper and calculating the volumes.

For this task you are going to construct 3 different sized boxes (without lids) and calculate their volumes.

a) Make three boxes, of different sizes, each from a piece of 12 cm× 12 cm square grid paper you have been given.
Label the boxes A, B, and C. Each box can only be made by cutting out a square or squares from each corner of your grid paper (an example is shown in the diagram below), and then folding up and cellotaping each side.

i.e.,



b) Calculate the volume of each open box you have made.

Volume of Box A = _____

Volume of Box B = _____

Volume of Box C = _____

c) If you were now asked to make a box without a lid from a piece of 8 cm × 8 cm square grid paper (by cutting out squares from each corner), what dimensions would you construct to give it:

i) maximum volume? _____

ii) minimum volume? _____

Square Grid Template: 12 cm × 12 cm