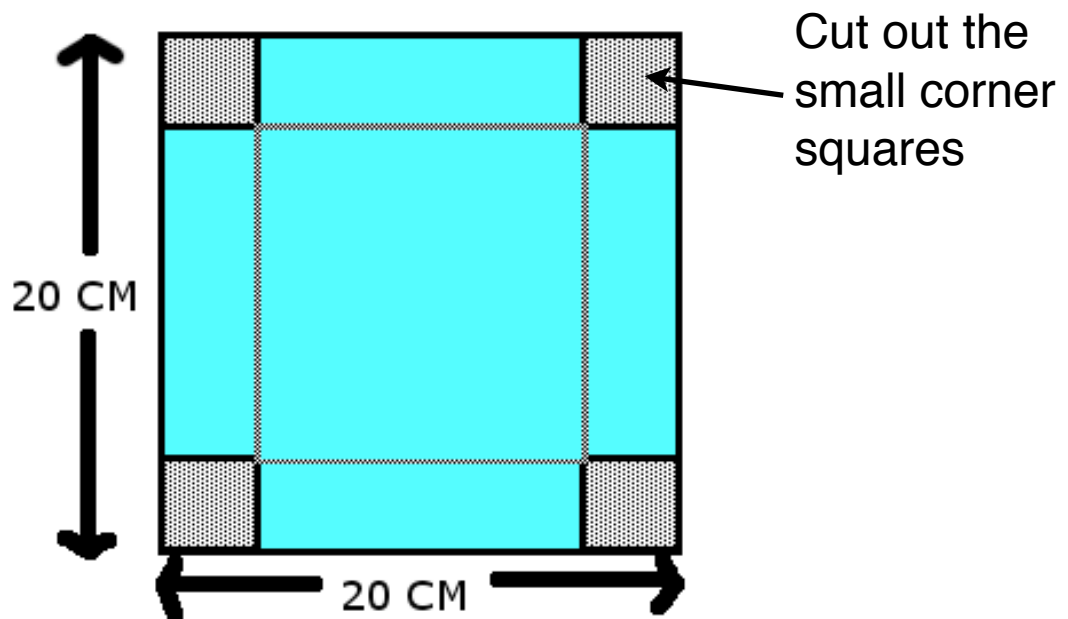


Cuboid challenge

From a square sheet of paper 20cm by 20cm, we can make a box without a lid. We do this by cutting a square from each corner and folding up the flaps.



Imagine you fill the box with water. By working out the volume of this box as if it were a cuboid you can calculate the volume of water it could carry.

1. How does the volume of water you can fit in the box vary if you change the size of the squares that are cut out? Try making some boxes and find out.
2. What is the maximum possible volume and what size cut produces it?
3. Try this again with different sized paper, say 30cm by 30cm.
4. Can you find a relationship between the size of the cut that produces the maximum volume?