Making Meaningful Mathematics
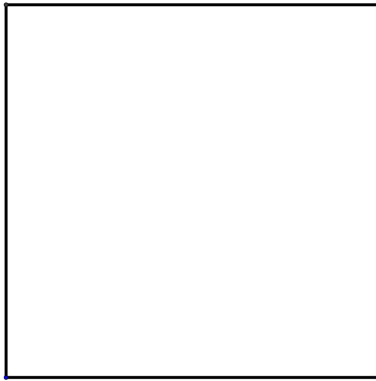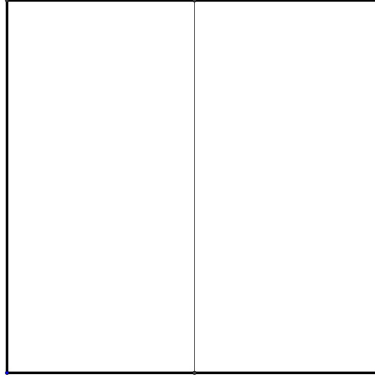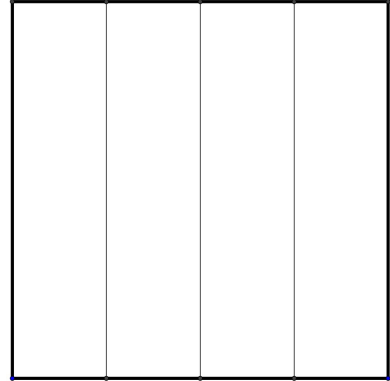
using origami

NCTM-Philadelphia
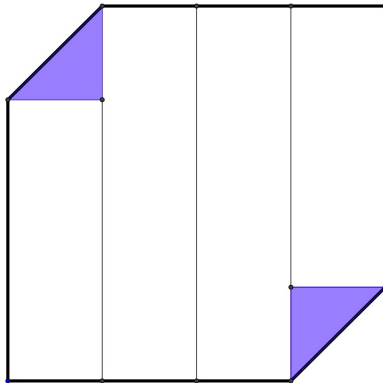April, 2012
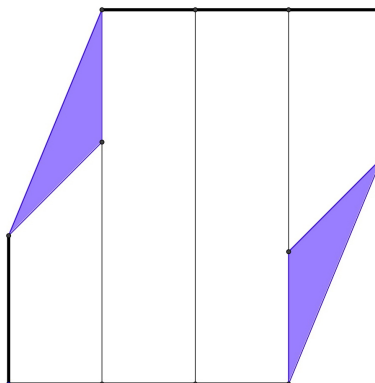j_georgeson@earthlink.net

Start with a square.
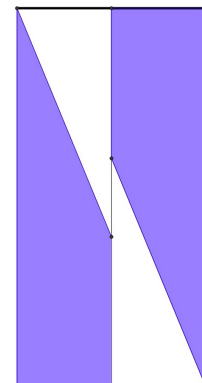
Fold in half, then unfold.

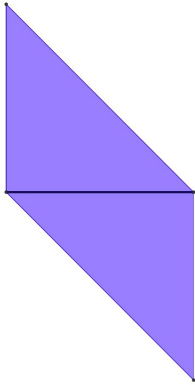Fold the right and left edges to the middle, then unfold.

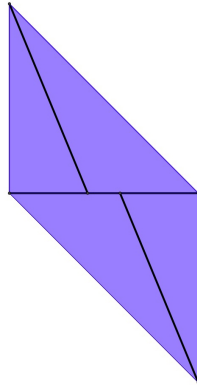Fold the lower right and upper left as shown. Keep the edge behind the vertical line a bit.

Double fold, bisecting the angle. Again, stay behind the vertical line a bit.

Fold both left and right sides to the middle line.
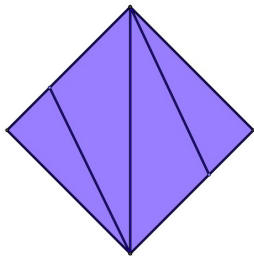
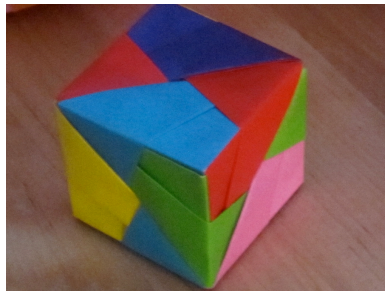|		
Fold the upper right and lower left as shown. You should see 2 right isosceles triangles.	Tuck the triangle under the double fold as shown.	Flip the unit over.
Fold the points to make a square. The double folds should be showing.		
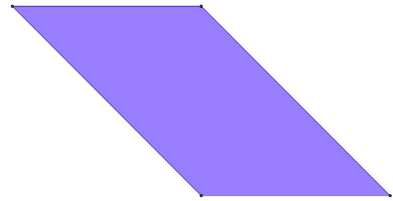
These are the fold lines made by folding the cube unit. The center square is the same as the face of the cube. What is the area of that square? Assume the length of the original paper is a variable.
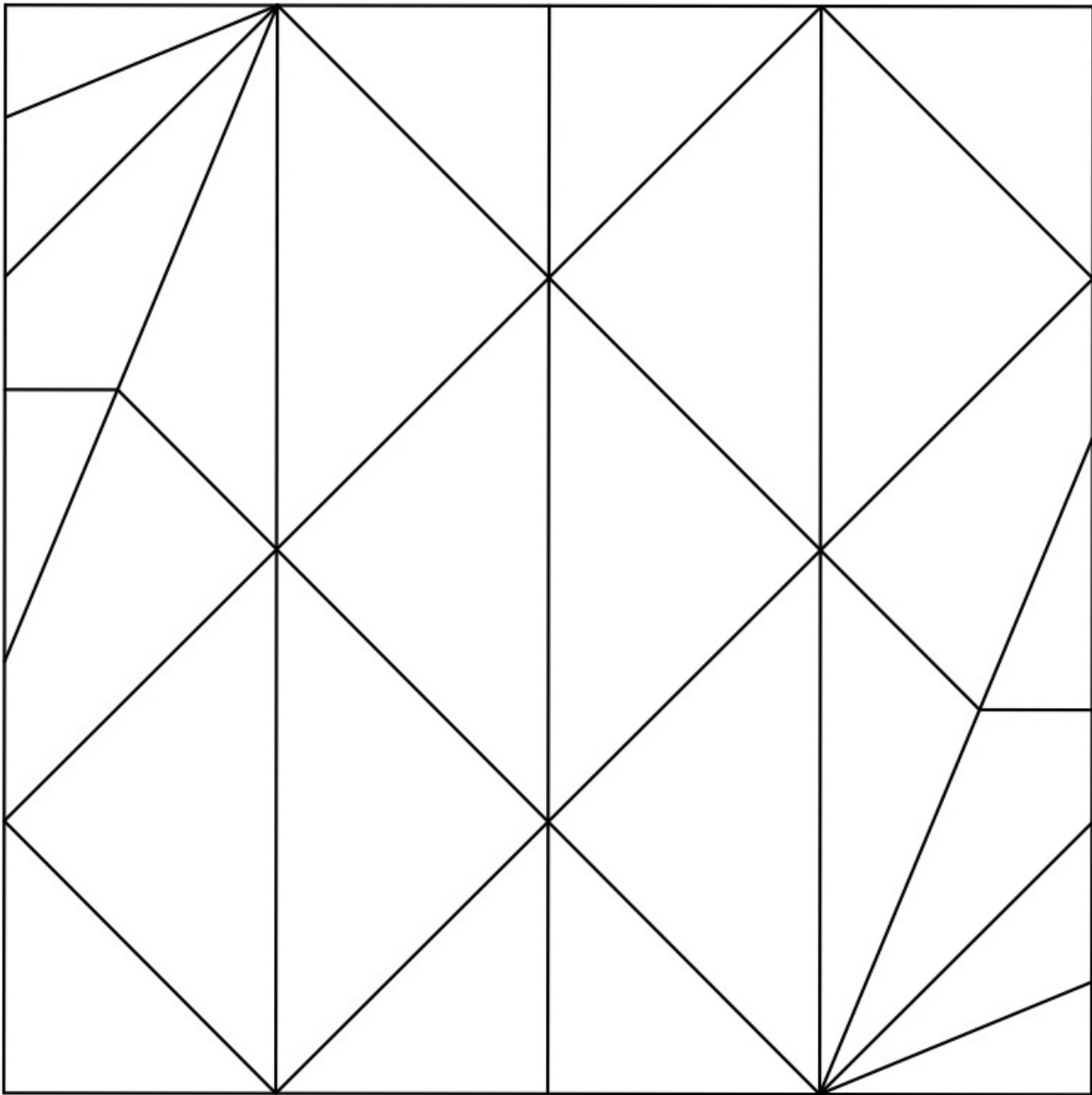
length of original square	resulting length of cube	resulting area of one face of cube	resulting volume of cube
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
x			

length of original square	number of beans required to fill
1	
2	
3	
4	
5	
6	
7	
8	