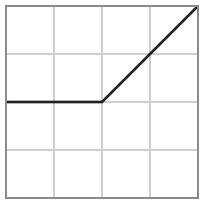
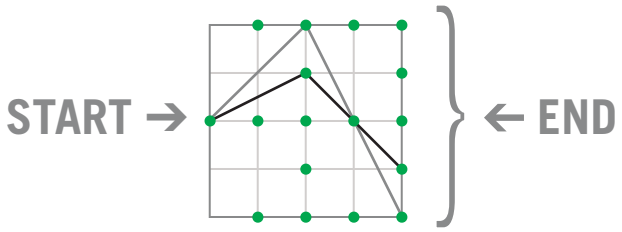
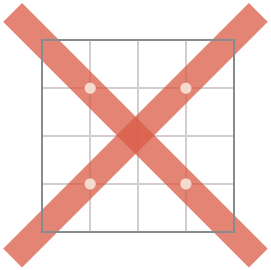
CUBE SECTION – 2 MODULES – EXTERNAL SURFACE

Step 1 Section square in two parts.

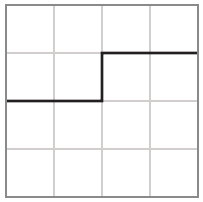
Start at midpoint on left side. End at any point on right side.

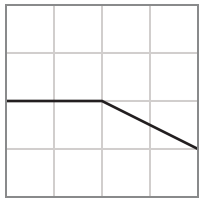


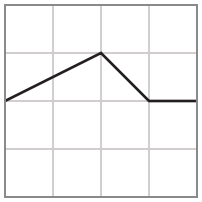


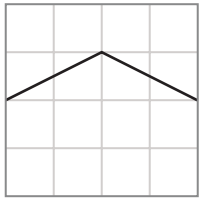


NOTE: Do not use the points shown at left to end your lines – passing through them is OK.

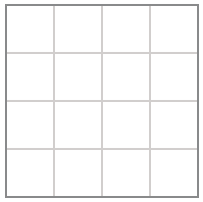


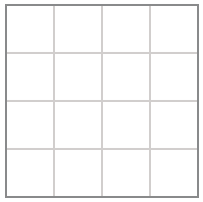


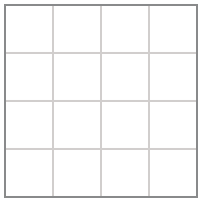


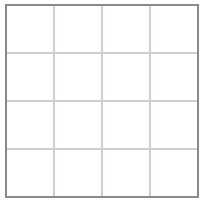


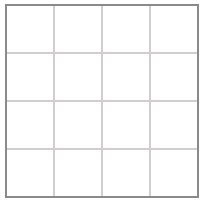
1. Select one of the sections for your cube from the examples at left (except first section) or sketch your own section in the grids below. Keep the section simple: 2-3 lines maximum.

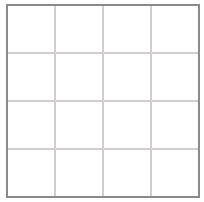


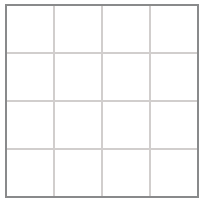


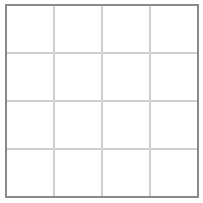


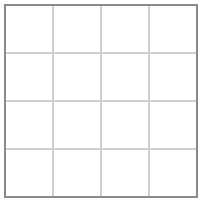


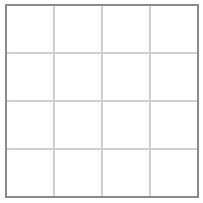


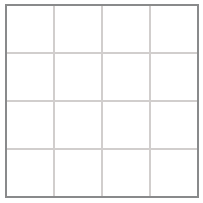


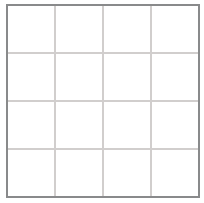






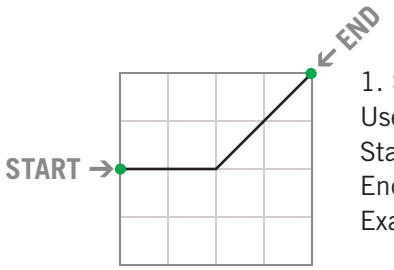




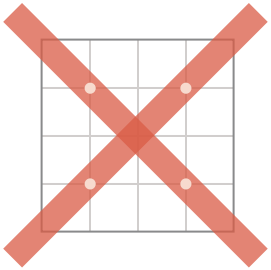


CUBE SECTION – EXTERNAL SURFACE

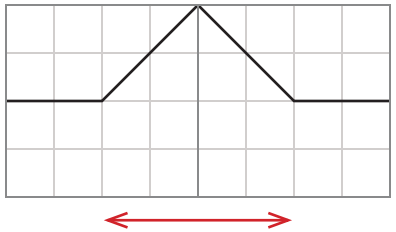
Step 2 Rotate/duplicate initial square.



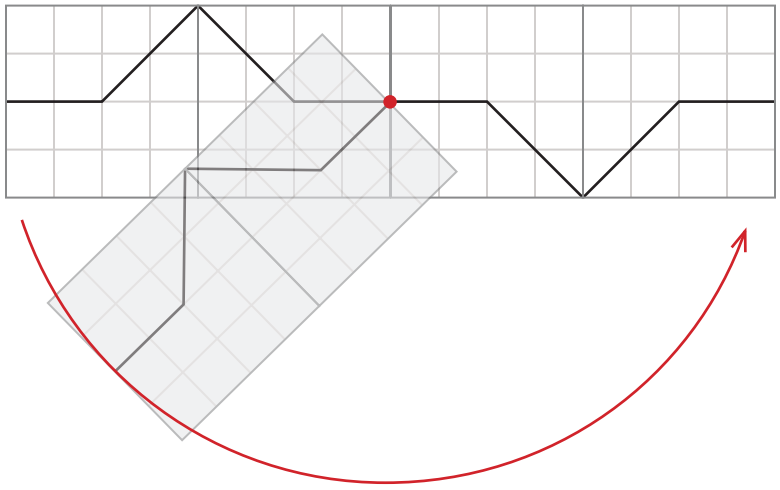
1. Section the face of the cube in two parts.
Use two or three segments maximum.
Start at the midpoint of the left side.
End at any point on the right side.
Example shown is for reference only.



NOTE: Do not use these four points to end your lines – passing through them is OK.



2. Duplicate and mirror the section.



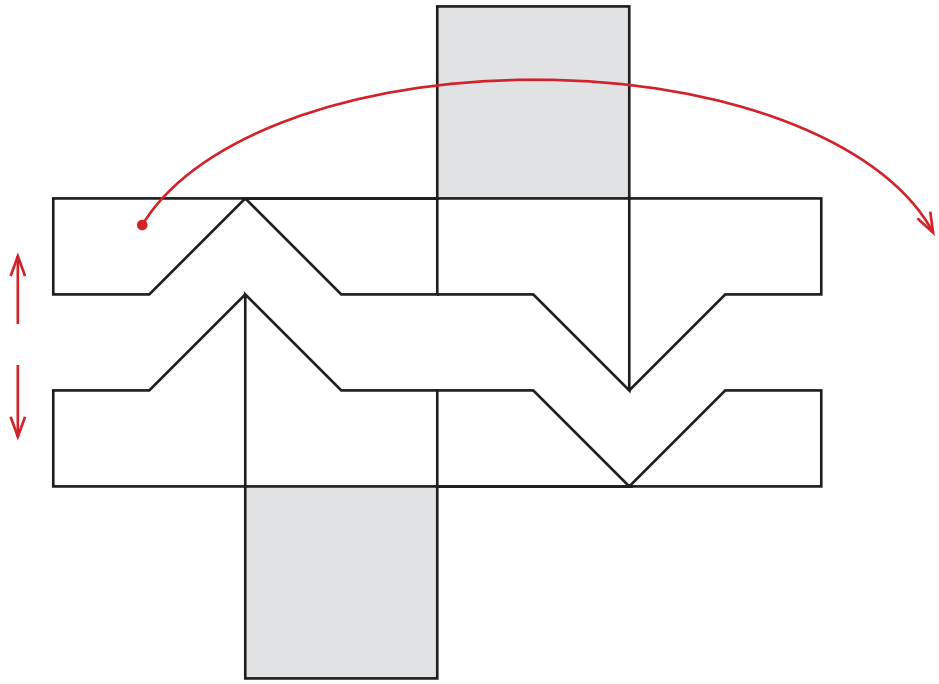
3. Duplicate the two squares and rotate them 180° with pivot on the red dot.

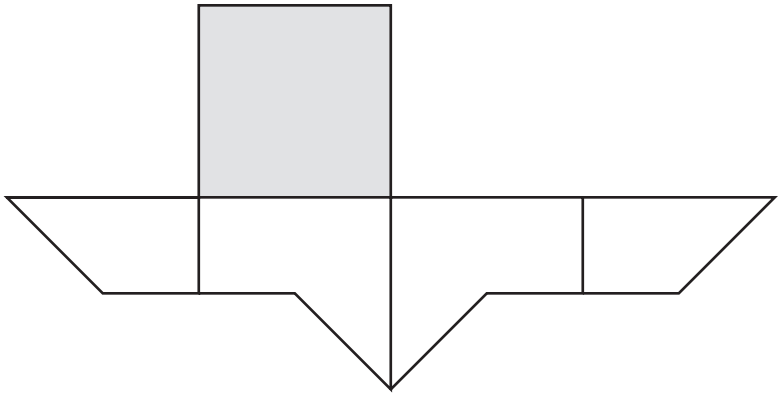
CUBE SECTION – EXTERNAL SURFACE

Step 3 Add top and bottom squares and separate the two sections.

1. Separate the four squares along the sections. Add the top and bottom squares. This constitutes the external surface of the two modules. Arrow shows how one section was moved from the left to the right, so as not to dangle by a single contact point. This will depend on the specific design.

2. When building the cube, you might want to rearrange the parts so that they all have at least one edge in common.

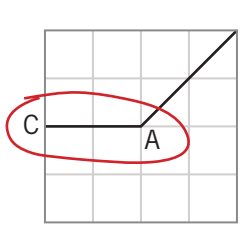




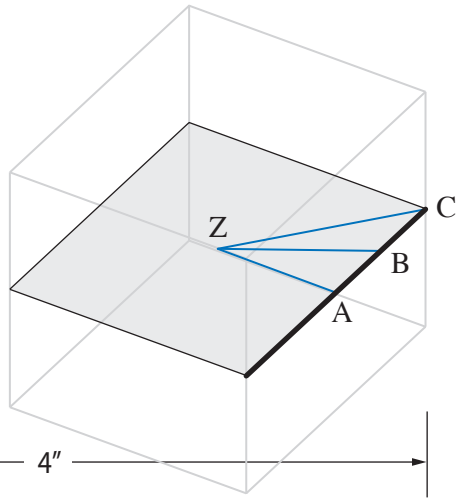
CUBE SECTION – INTERNAL SURFACE

Step 4 Use the given letters to mark any external points of the section that are either on the median or...

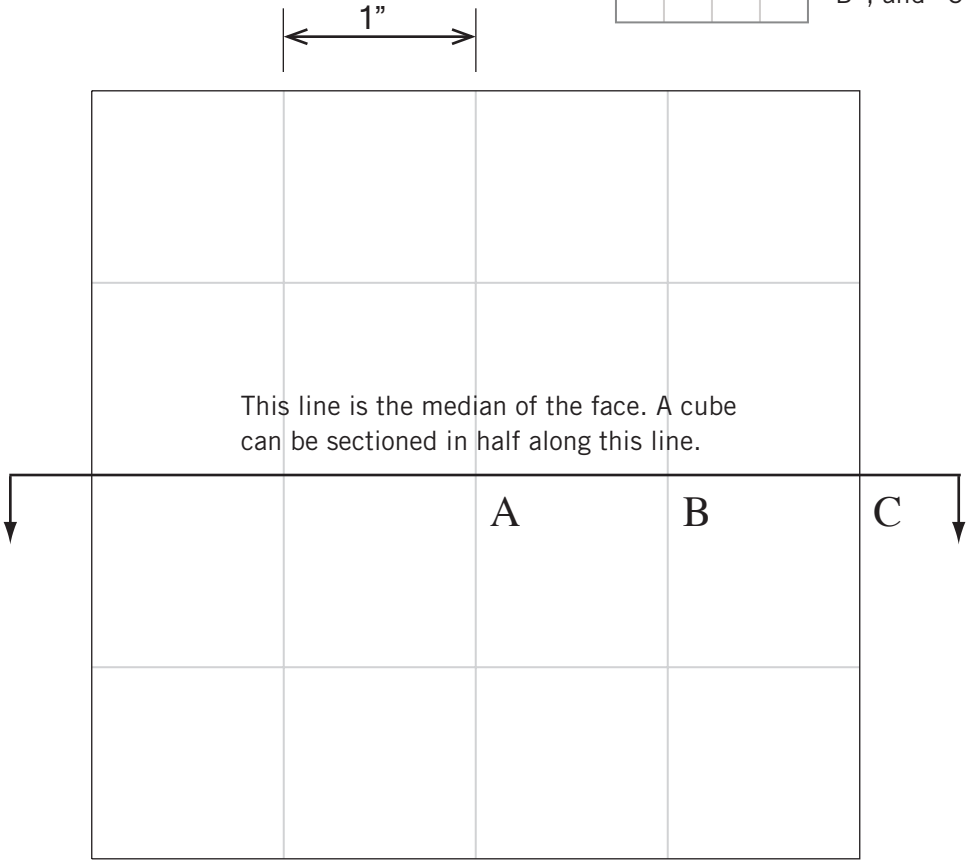
NOTE: when printing, select Page Scaling: NONE. Check your drawing after printing to verify dimensions. Check both axes: vertical and horizontal.



Use this page to find distances for points "A", "B", and "C"

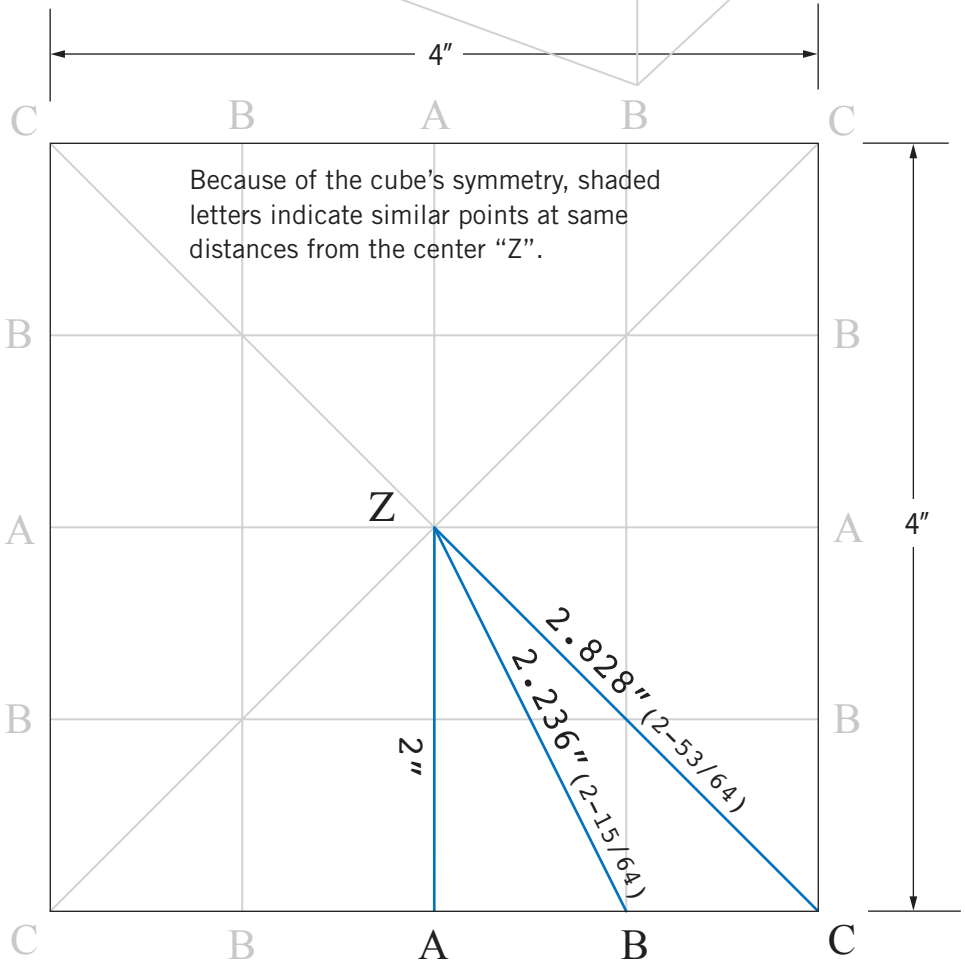


Distances from points on the median to the center of the cube "Z".



Face of the cube sectioned along the median.

NOTE: You can use this grid to draw your section at full scale.

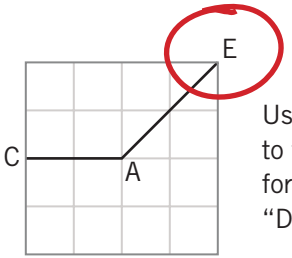


TRUE distances from points on the median to center "Z".
Use these distances for the construction of the internal section.

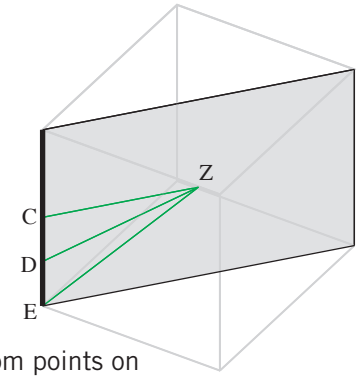
CUBE SECTION – INTERNAL SURFACE

Step 4 ...the edge of the face/cube.

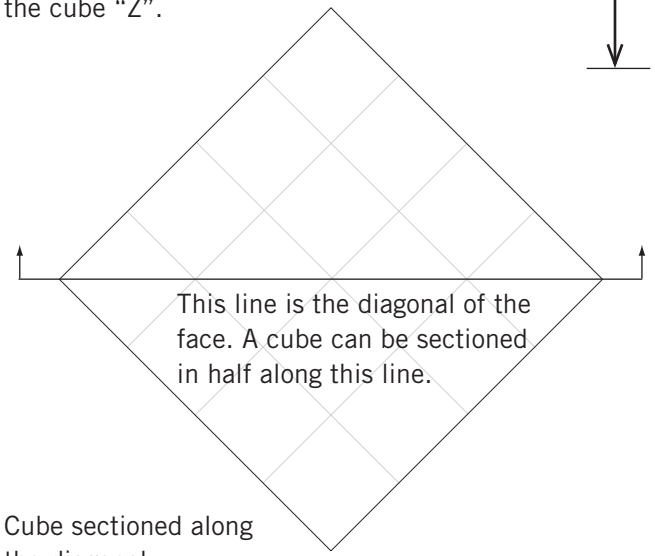
NOTE: when printing, select Page Scaling: NONE.
Check your drawing after printing to verify dimensions.
Check both axes: vertical and horizontal.



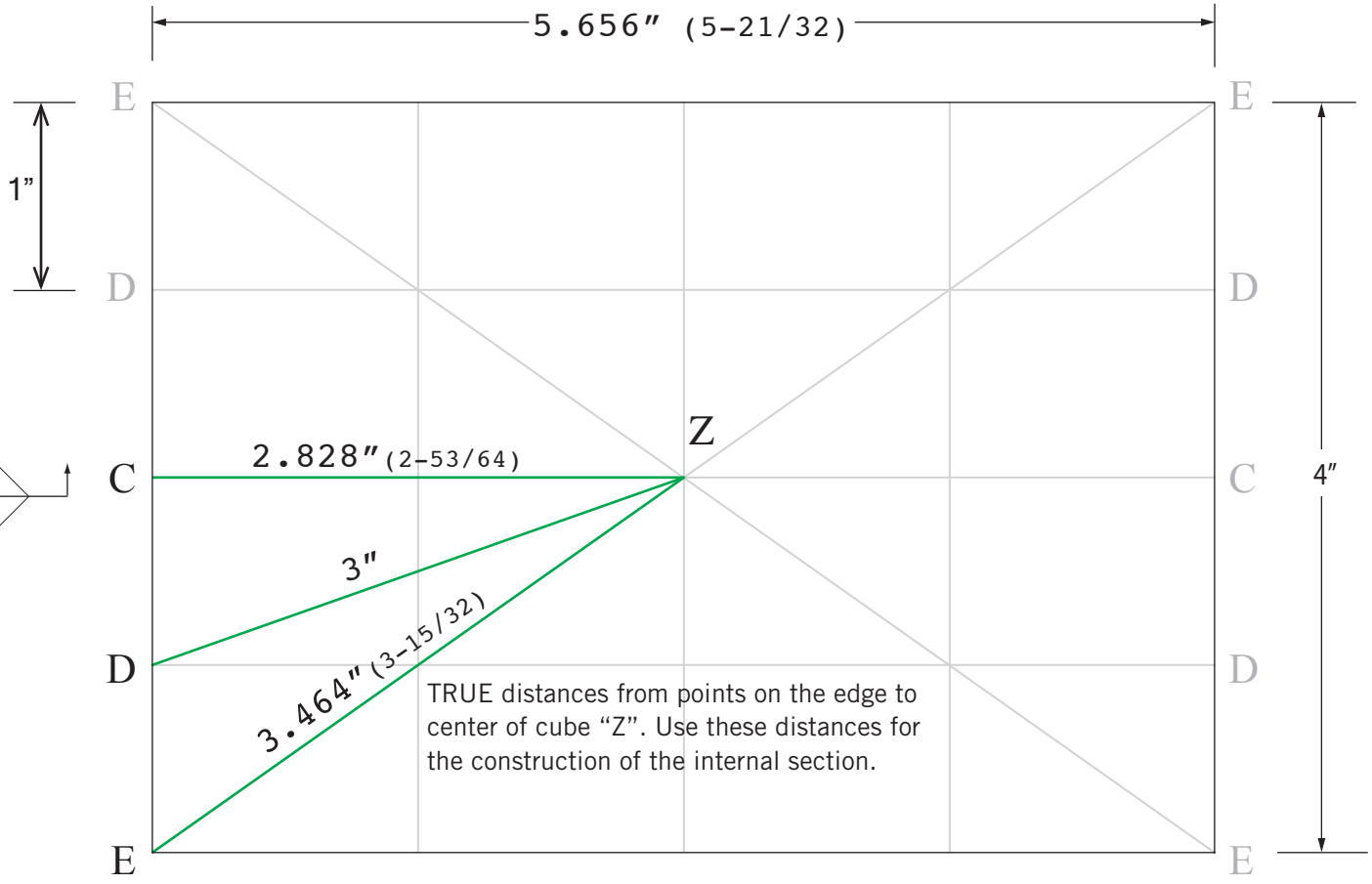
Use this page to find distances for points "C", "D", and "E"



Distances from points on the edge to the center of the cube "Z".

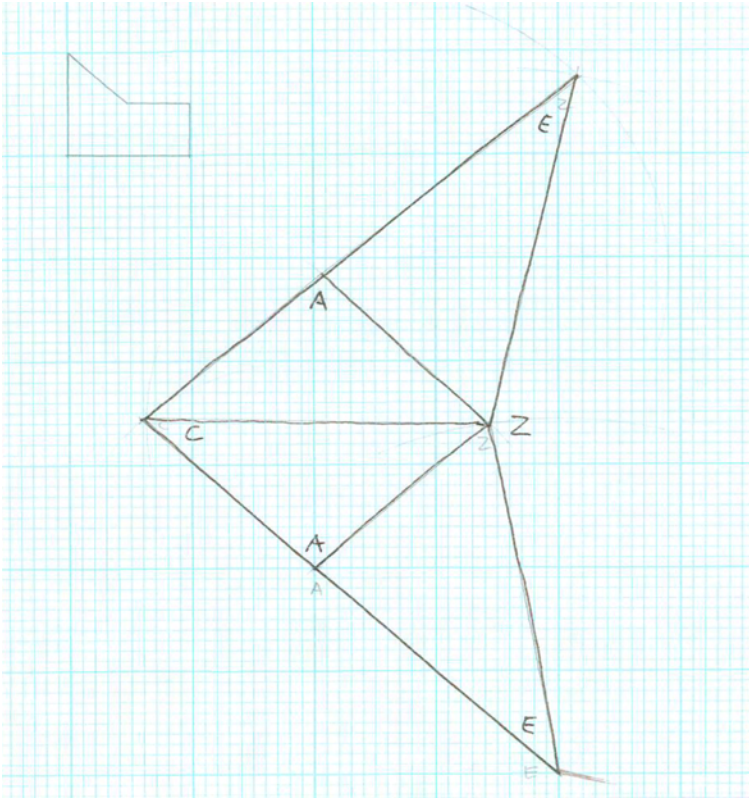


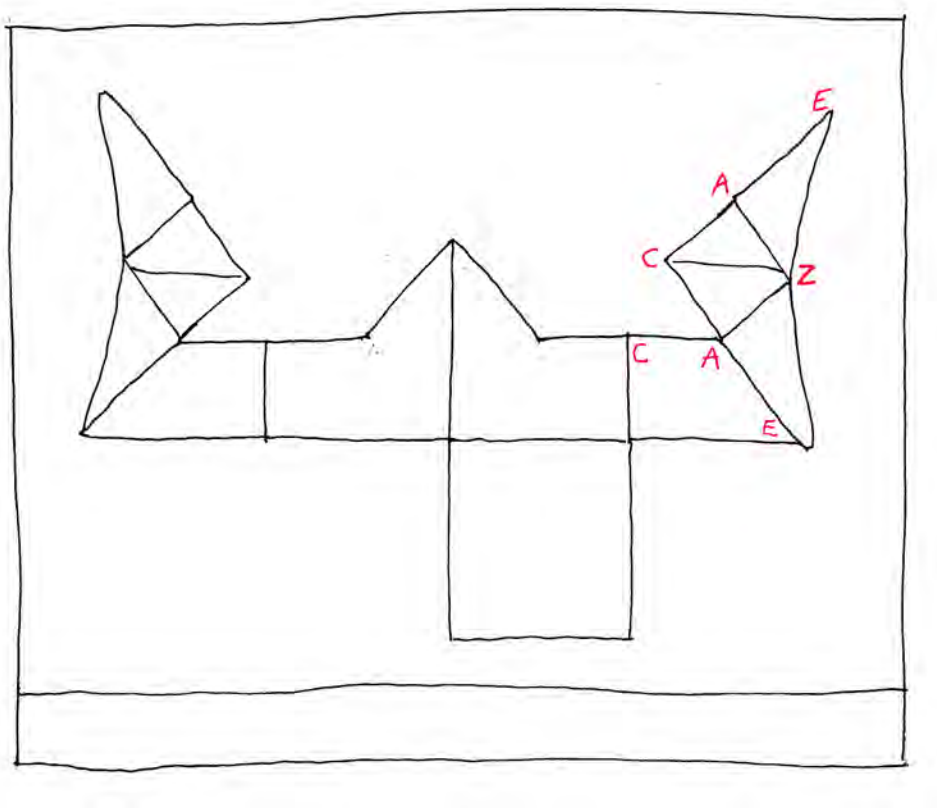
Cube sectioned along the diagonal.



CUBE SECTION – INTERNAL SURFACE

Step 5 **Using actual dimensions from the face section (external), in combination with actual dimensions from internal sections (Step 4), construct the internal faces of the cube module. Refer to class demo and use compass and ruler.**





CUBE SECTION – INTERNAL SURFACE

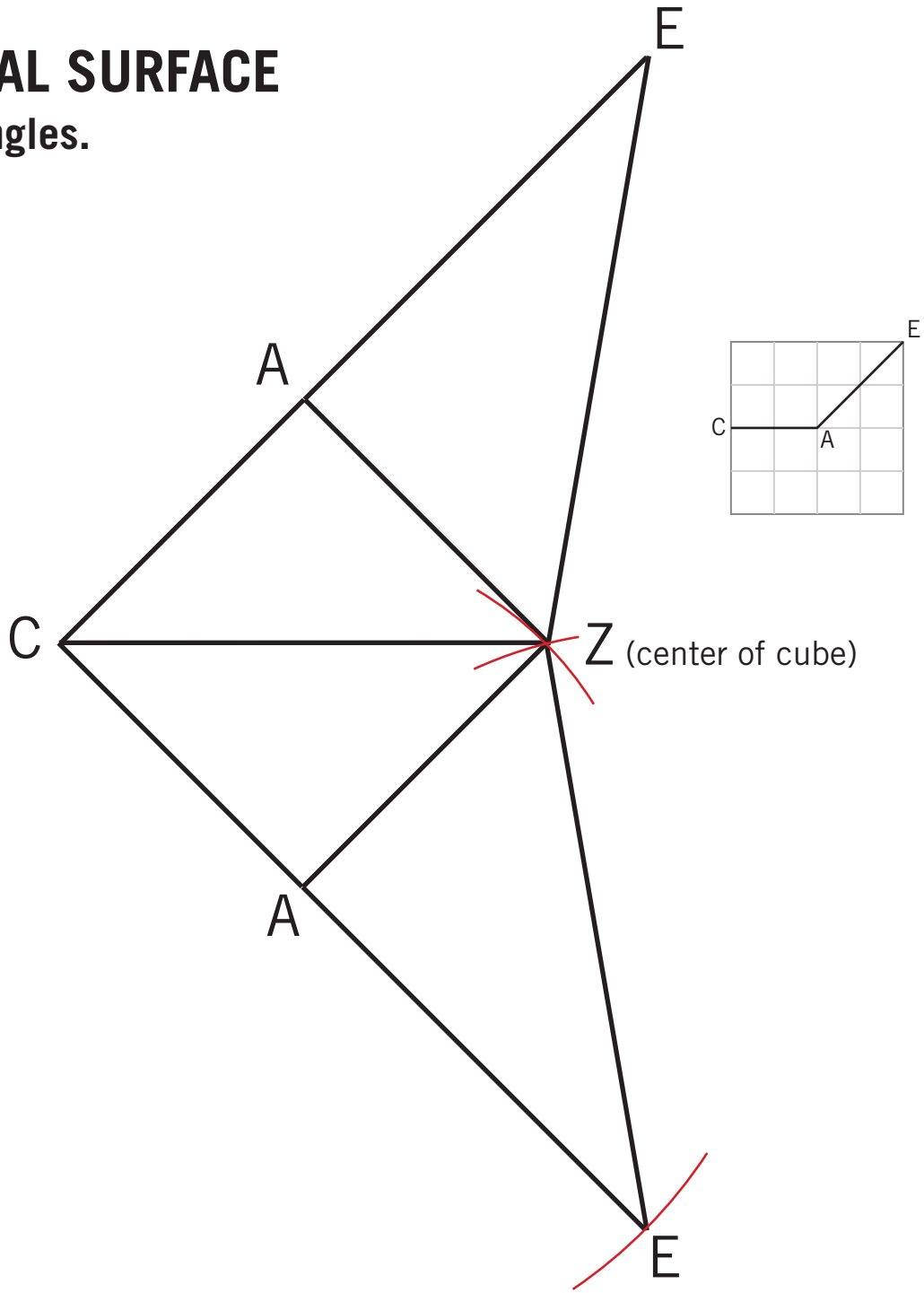
Step 5 Construct the needed triangles.

1. Start by drawing a segment from the external surface. In this case AE.

2. Center in A and length AZ, draw an arc with the compass.

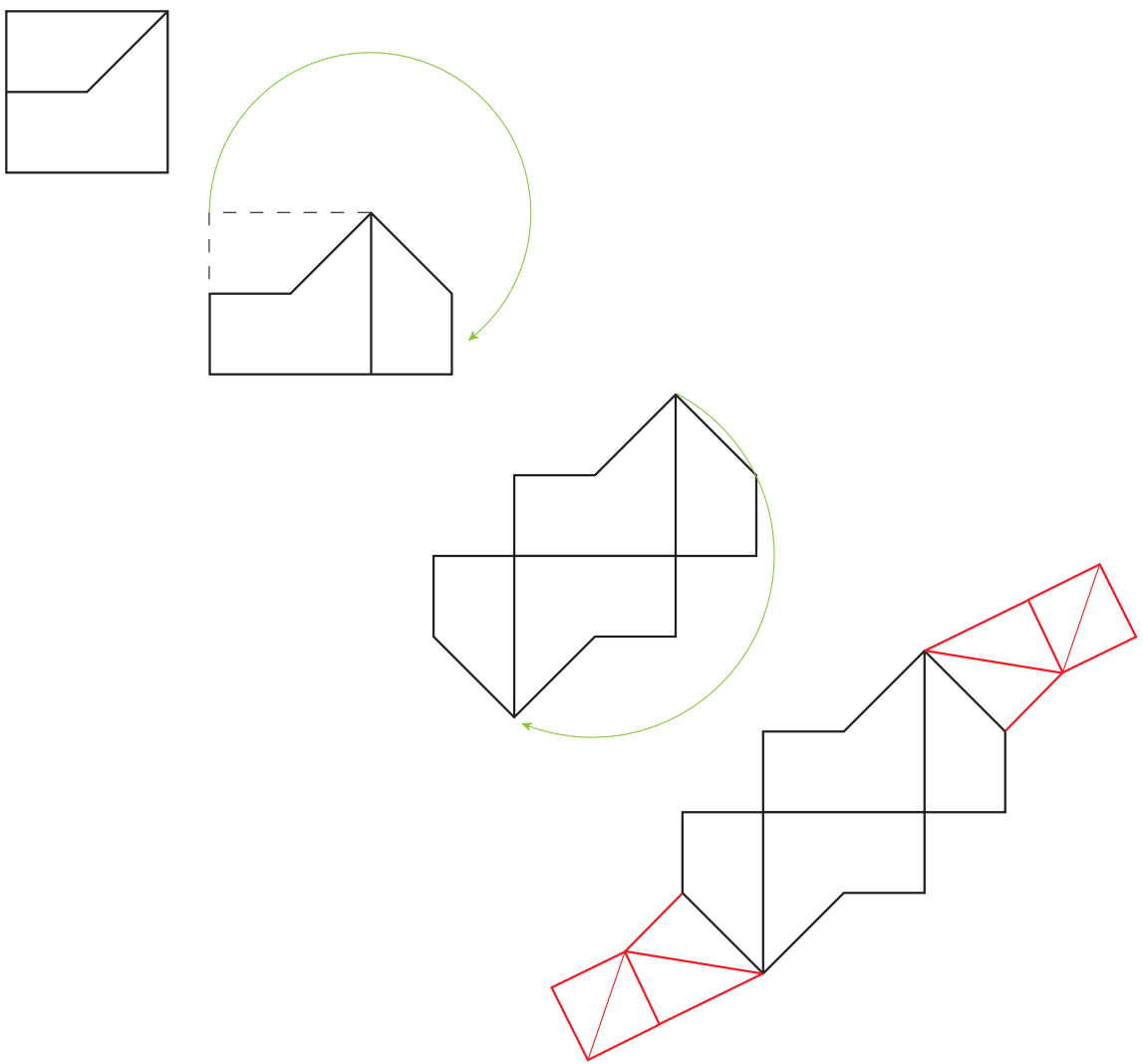
3. Center in E and length EZ, draw a second arc. The intersection of AZ and EZ gives the third point of the first triangle (center of the cube.)

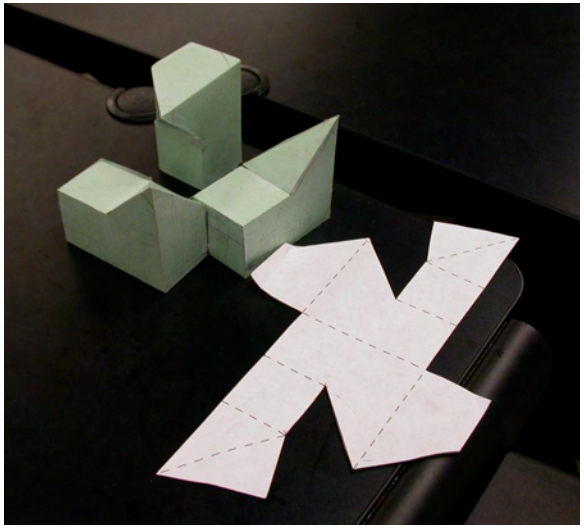
4. Repeat steps 1-3 as needed to determine the complete internal surface.



CUBE SECTION – 3 MODULES

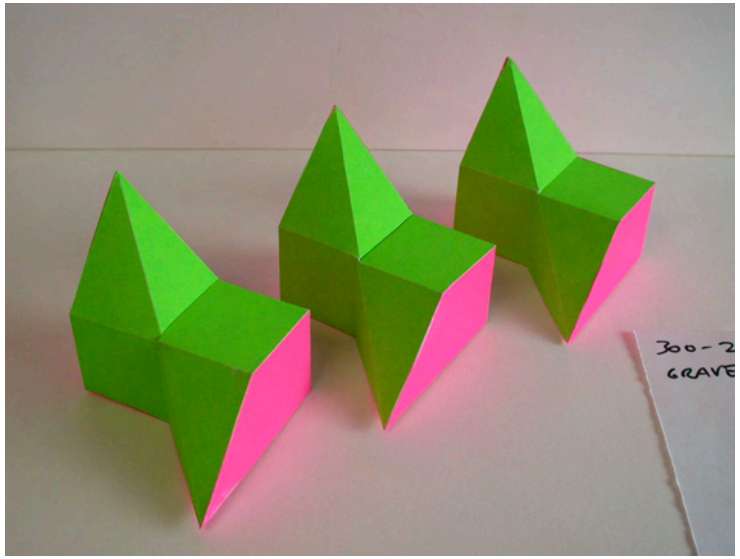
Rotations A similar process can be applied so that the cube is divided into 3 identical modules.



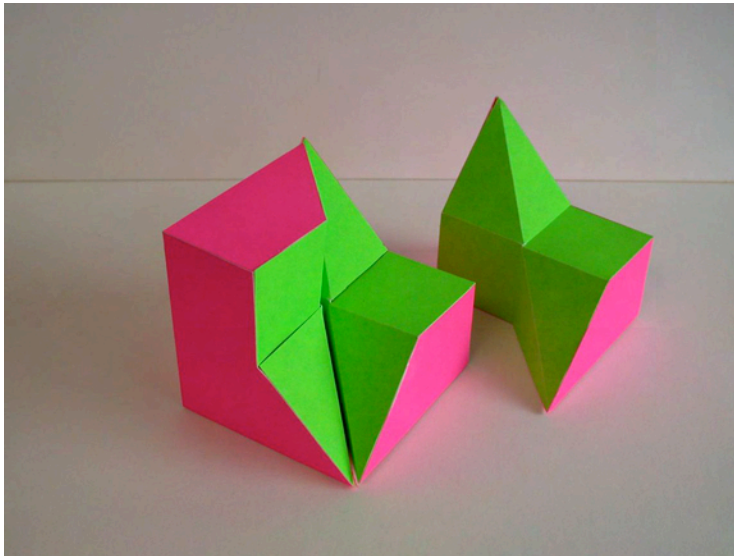


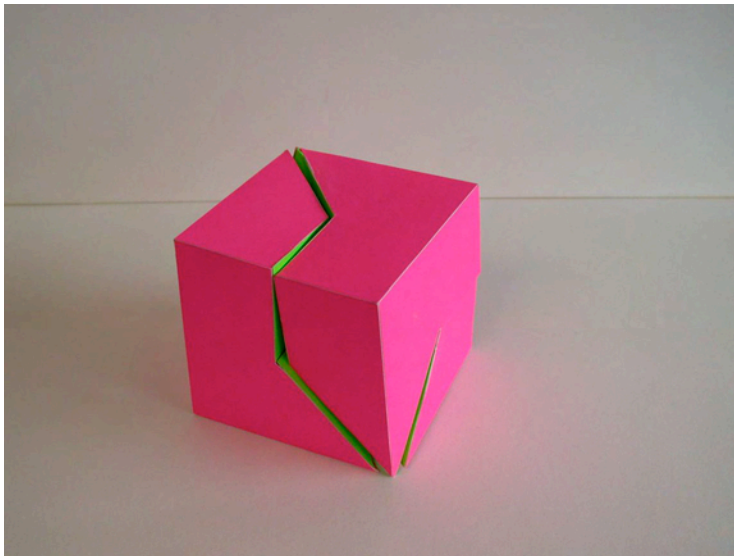
CUBE SECTION – 3 MODULES

Example 1



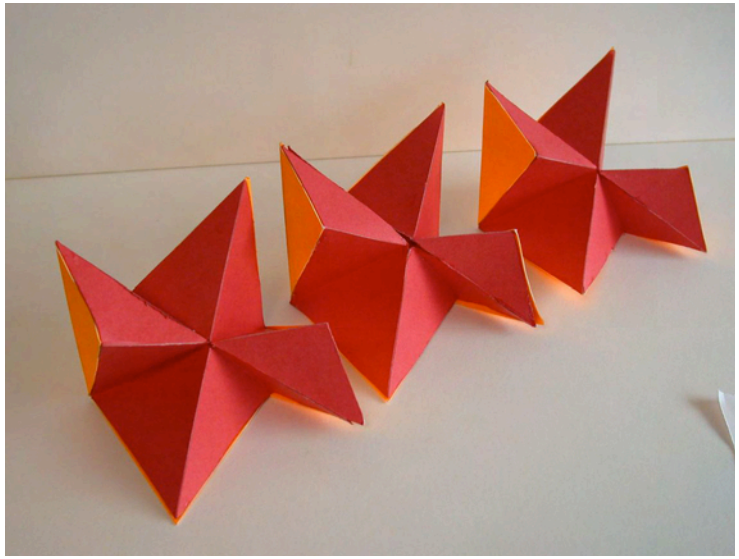
Student: Nathan Graver



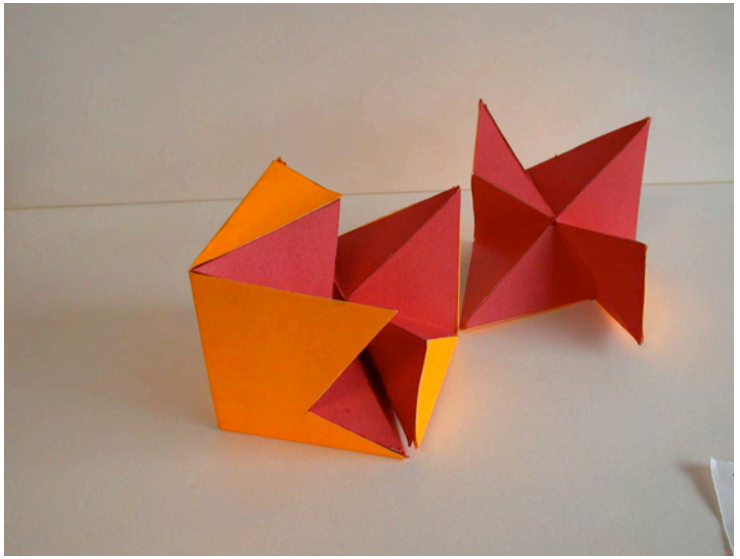


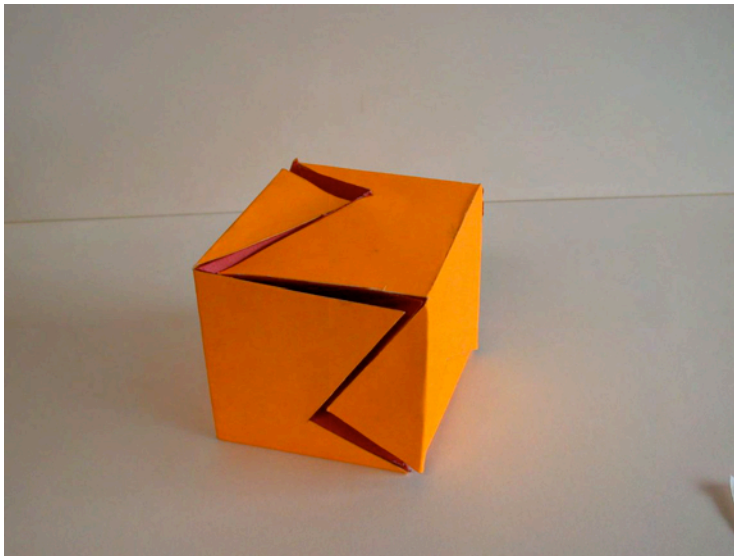
CUBE SECTION – 3 MODULES

Example 2



Student: Mariela Ellis



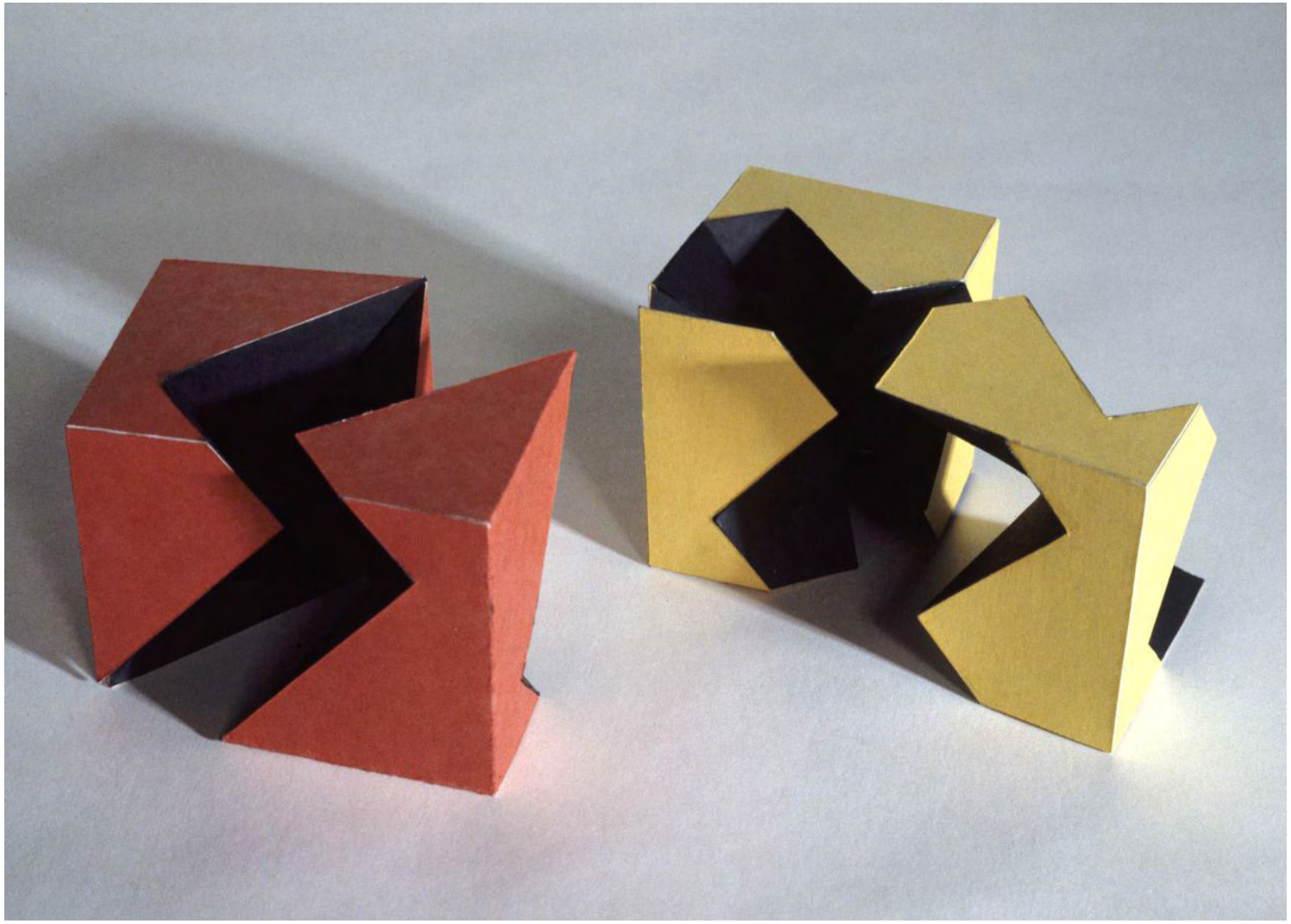


CUBE SECTION – 3 MODULES

Example 3

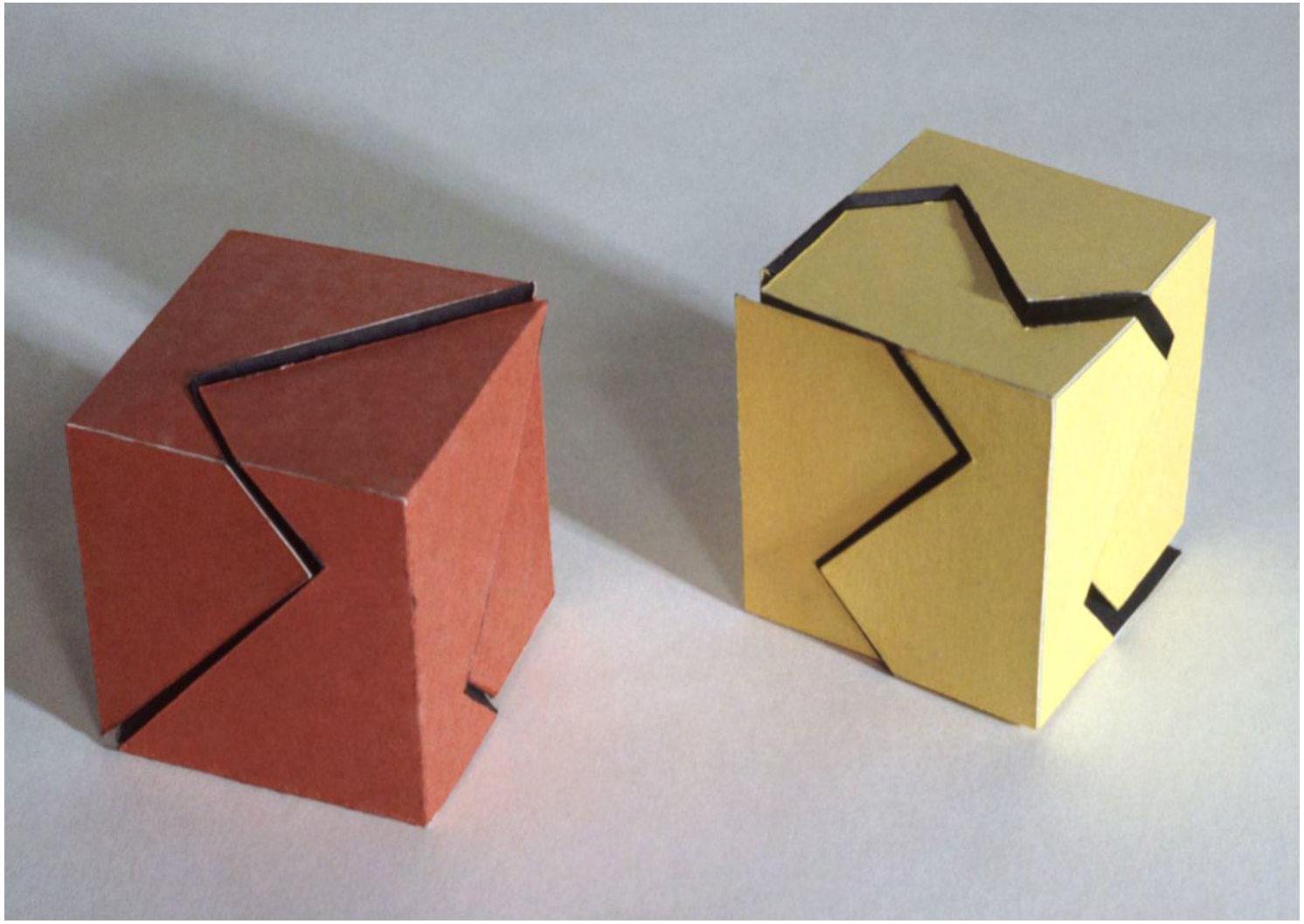
CUBE SECTION – 3 MODULES

Example 4



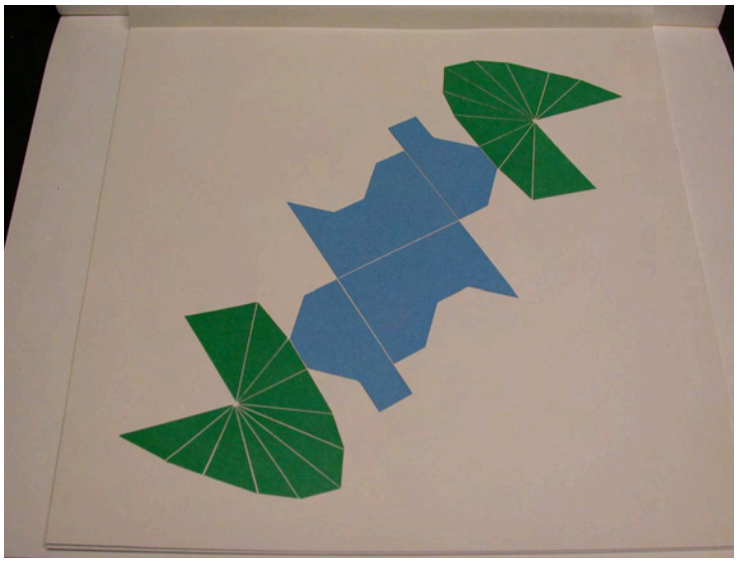
CUBE SECTION – 3 MODULES

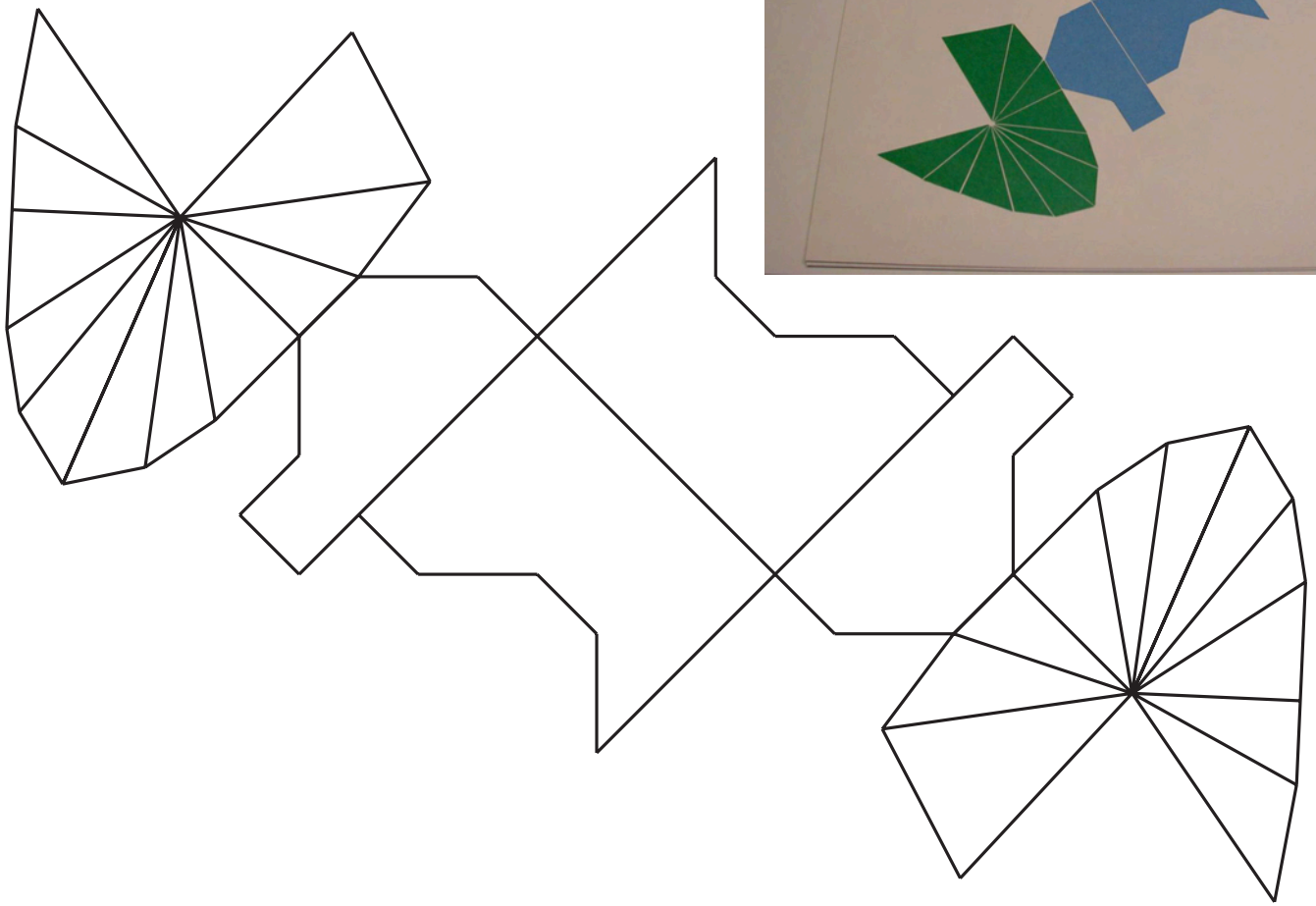
Example 4



CUBE SECTION – 3 MODULES

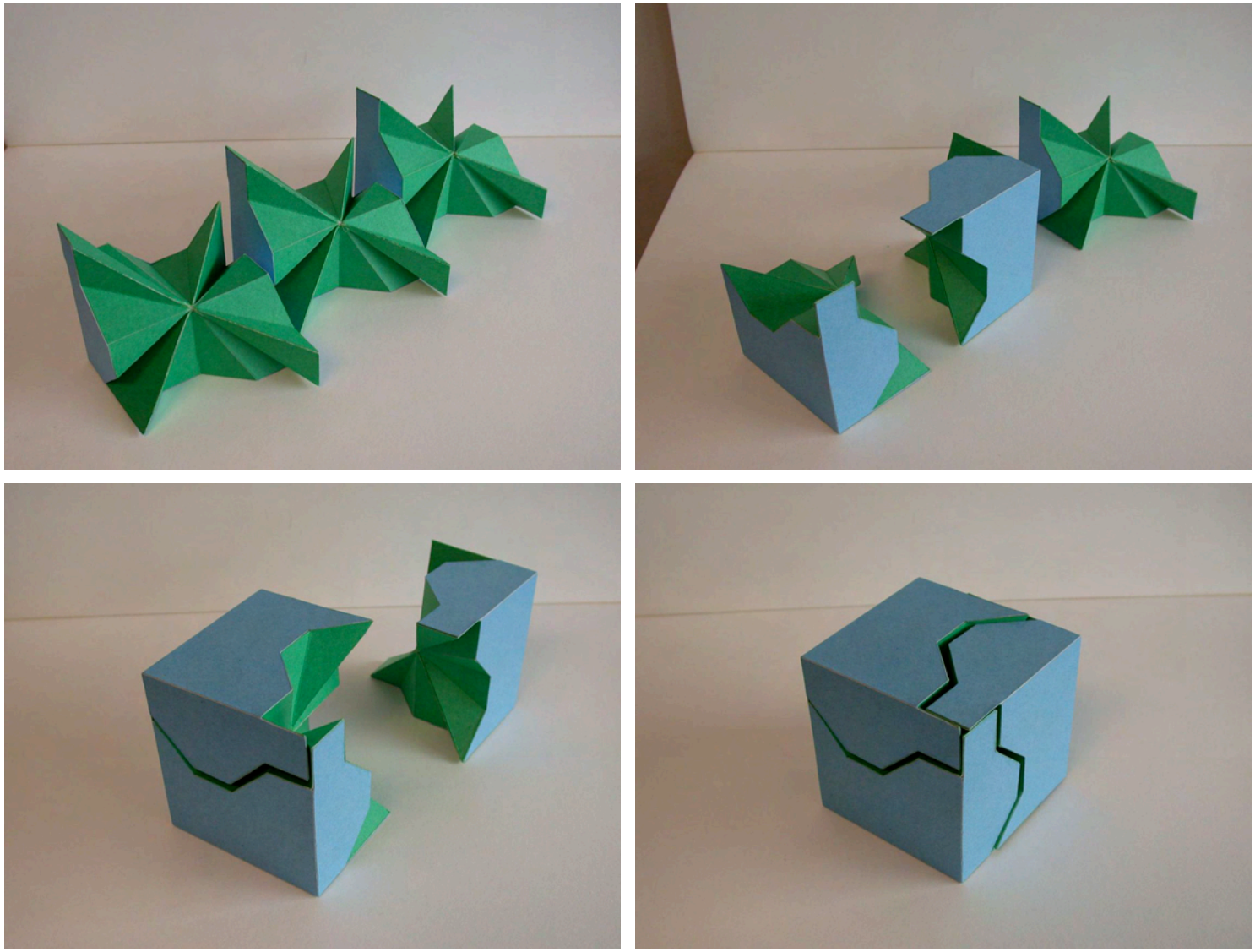
Example 5





CUBE SECTION – 3 MODULES

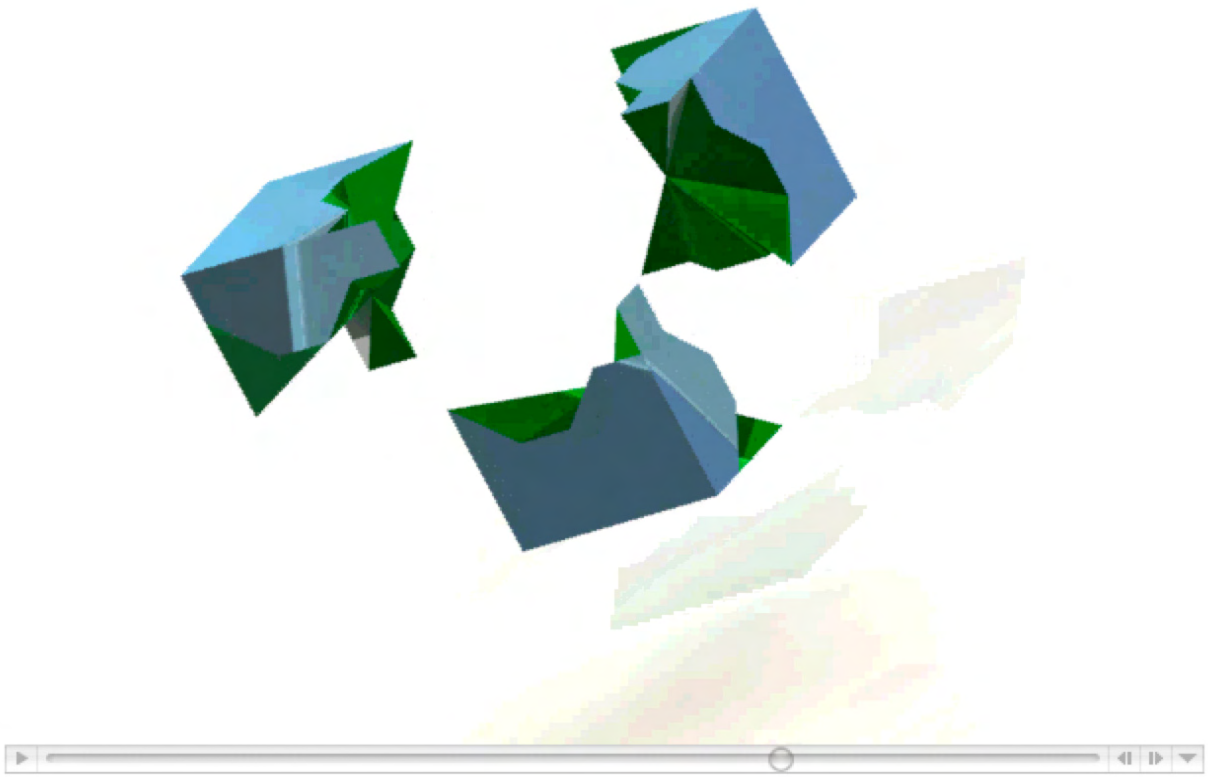
Example 5



Student: Eugene Wong

CUBE SECTION – 3 MODULES

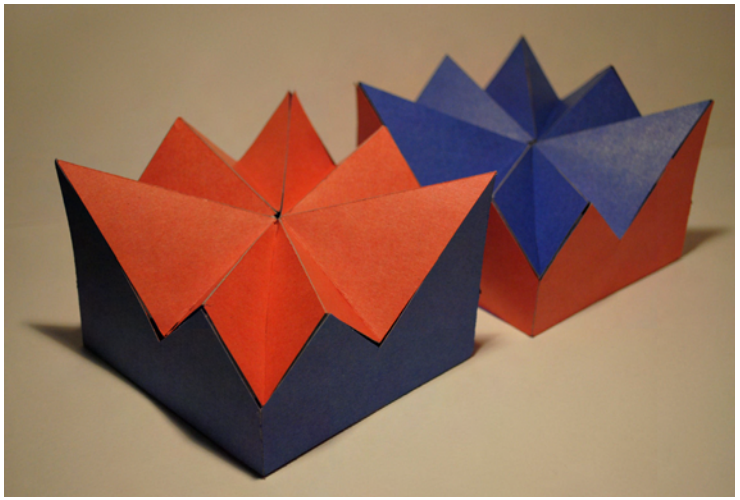
Example 5 Click on cube to view animation

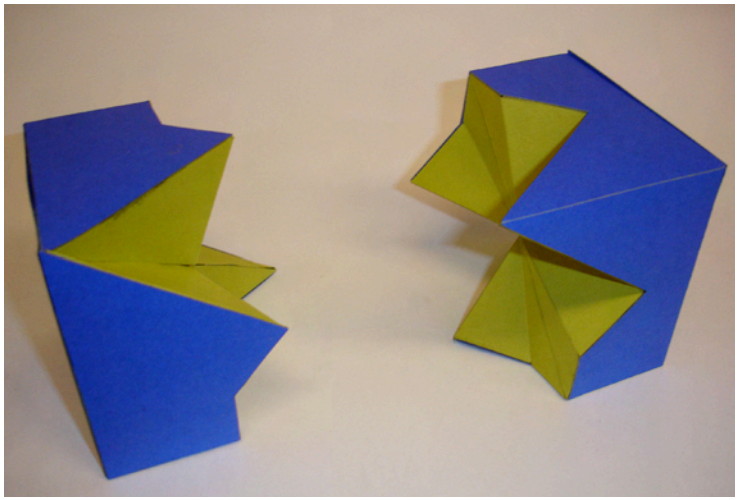


Student: Eugene Wong

CUBE ANIMATION. Click the image or the link below to see the movie.
http://files.trogu.com/trogu/com/documents/trogu_animation_wong_.mov

CUBE SECTION – FINAL MODEL





31A - Cube model (refined)

31B - Photo upload to iLearn