Hayes

Jiggi

3D Modeling & Visualization tool

Mitch Joachim & Hayes Raffle

Tangible Interfaces Class Project 10/28/02

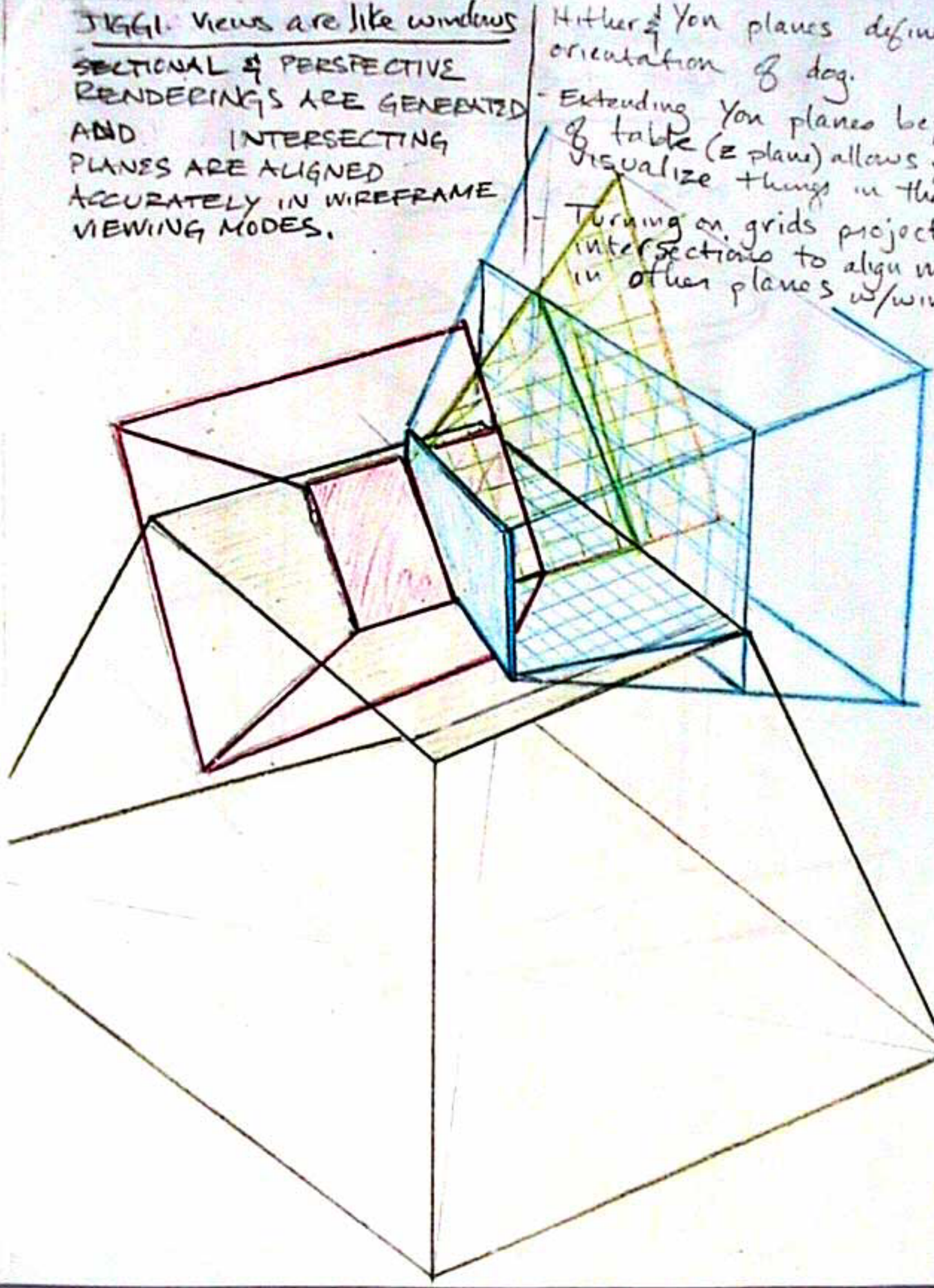
3D - VISUALIZATION THROUGH THE JIGGI

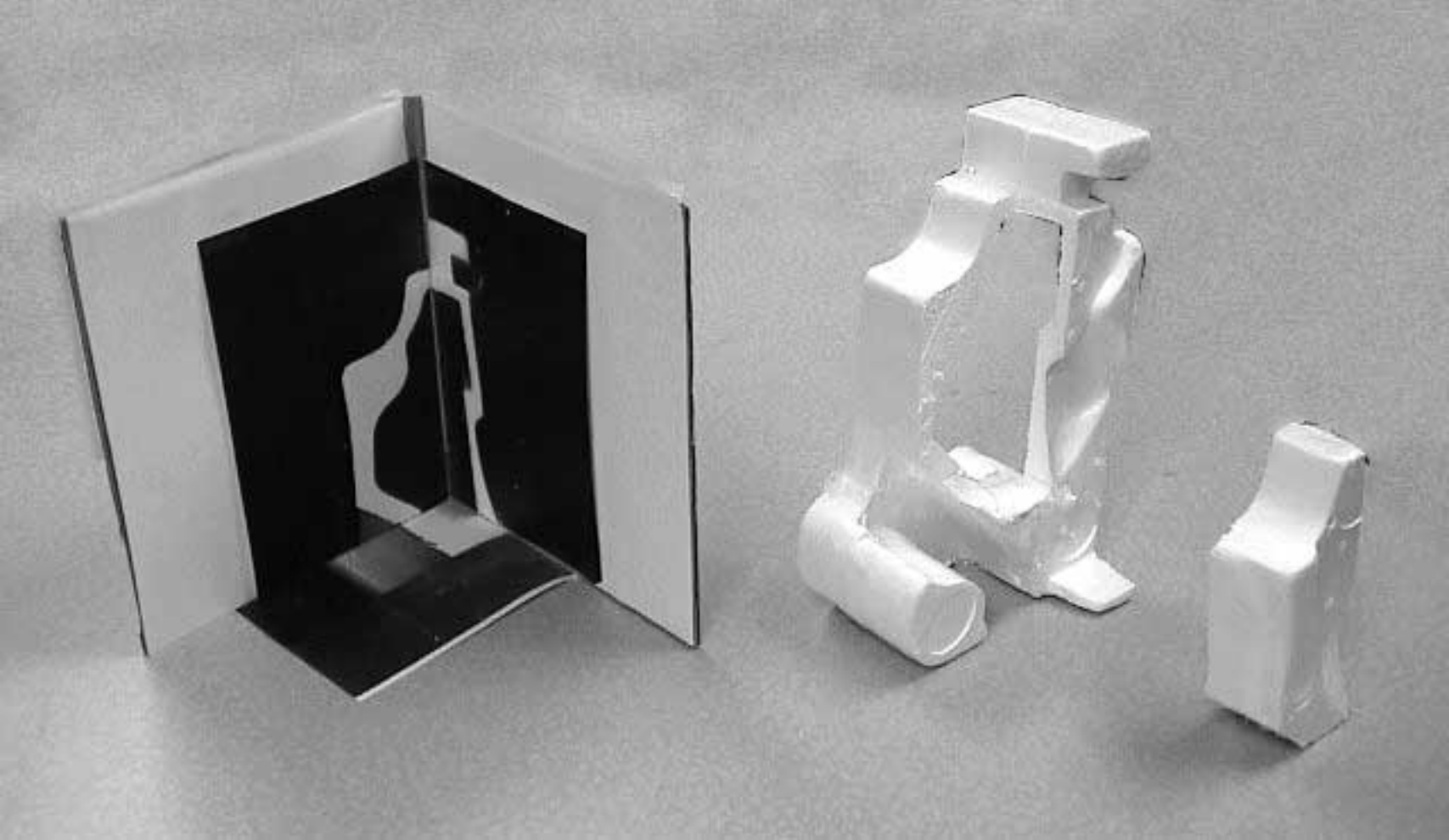
JIGGI. Views are like windows

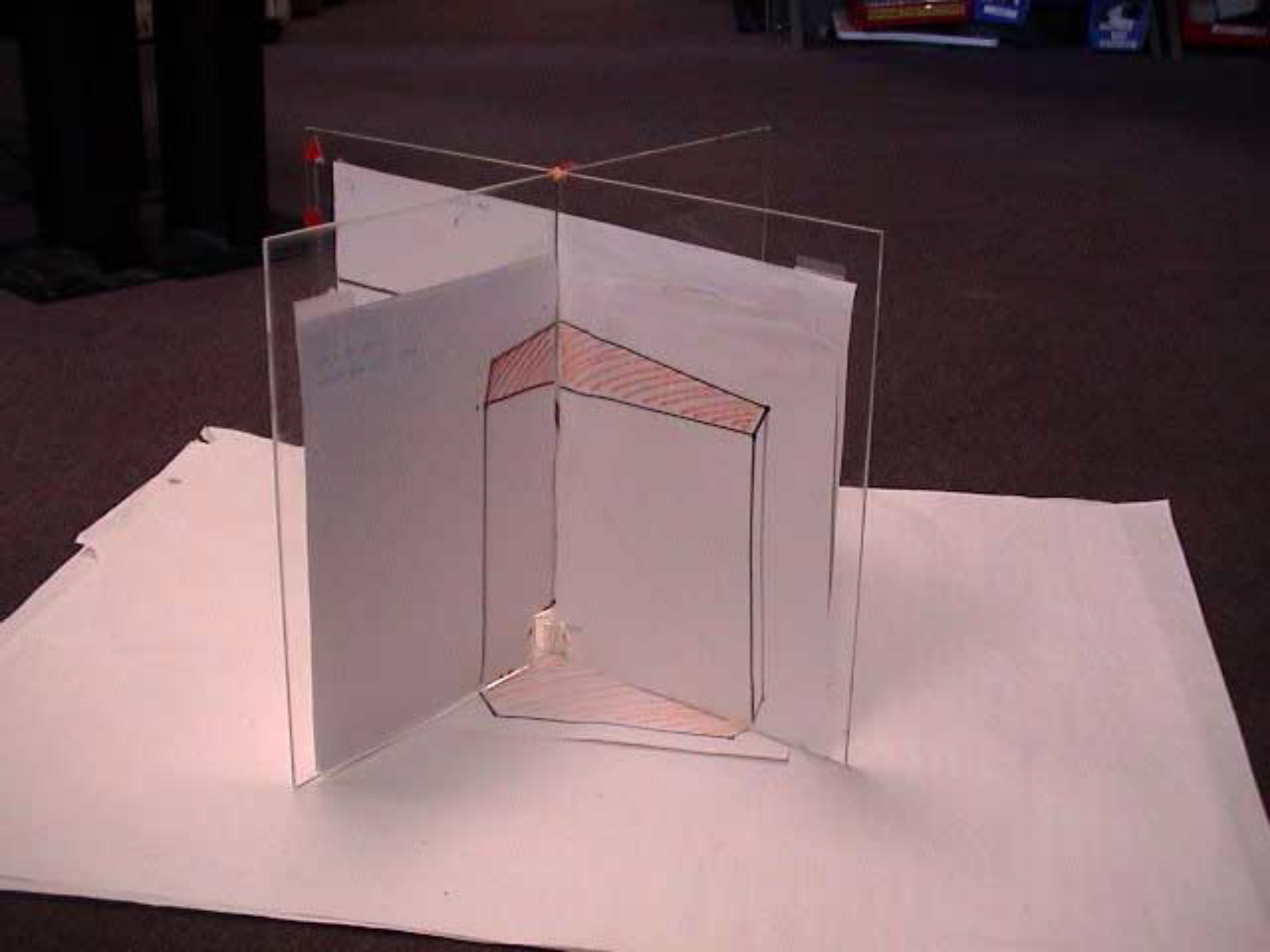
SECTIONAL & PERSPECTIVE RENDERINGS ARE GENERATED AND INTERSECTING PLANES ARE ALIGNED ACCURATELY IN WIREFRAME VIEWING MODES.

Hither & Yon planes defined by orientation of dog.

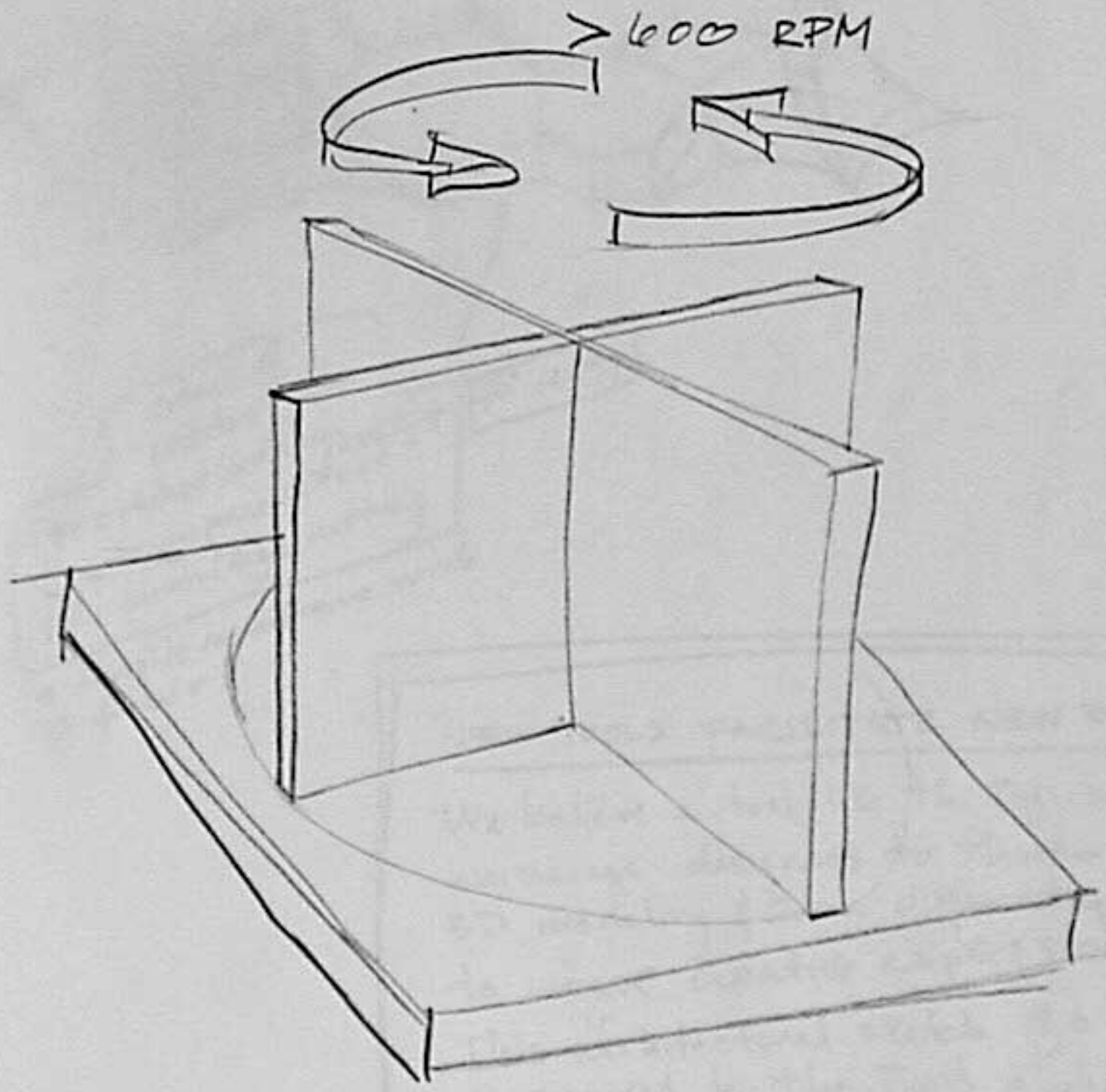
- Extending Yon planes beyond limits of table (Z plane) allows you to visualize things in the distance.
- Turning on grids projects planar intersections to align movements in other planes w/window views

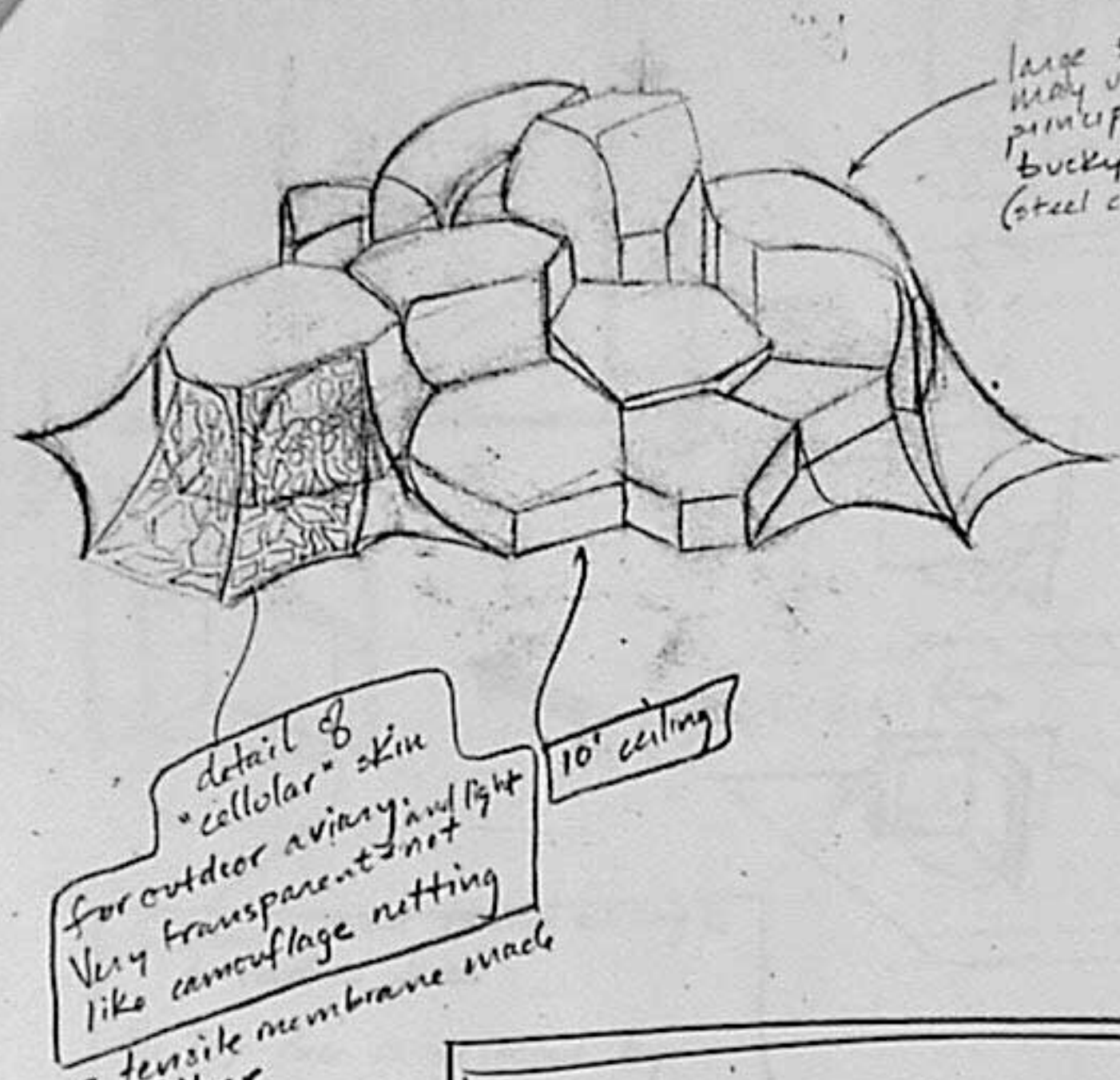






JIGGI SPINS WHILE DISPLAYING SECTIONAL CUTS, BECOMING A CYLINDRICAL 3-D DISPLAY



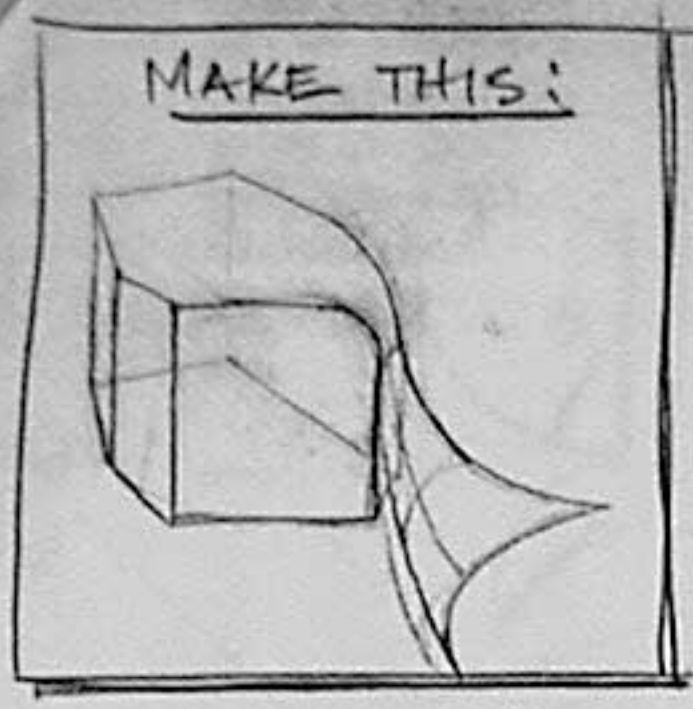


NEW TOOLS FACILITATE NEW EXPRESSION

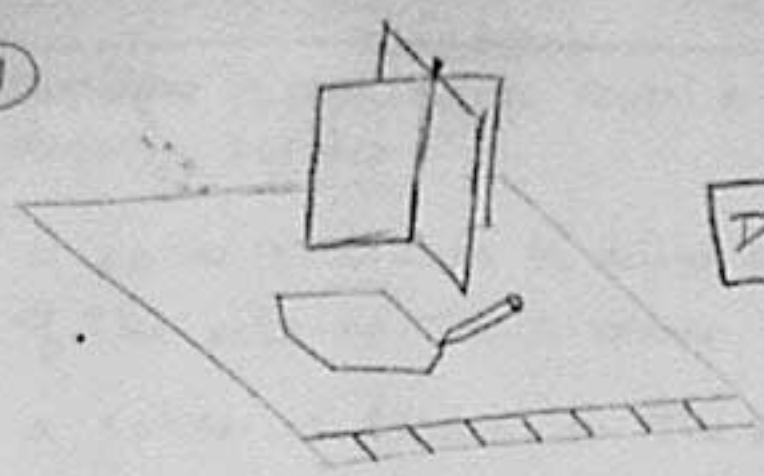
We believe a tool like the Jiggi will encourage designers to think about 3D modeling & Form differently, leading to unique creative expressions.

This architectural sketch of a greenhouse is inspired by the Jiggi's ability to draw arbitrarily positioned planes, and the complexity of crystal facets. The following explanation will show how such form might be constructed with the Jiggi.

MAKE THIS:

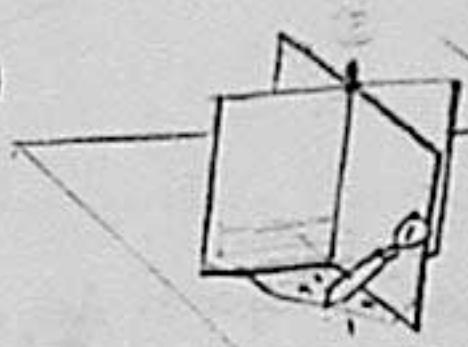


(1)

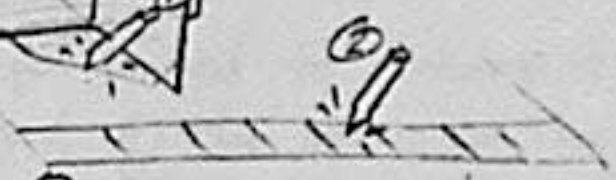


DRAW FACET

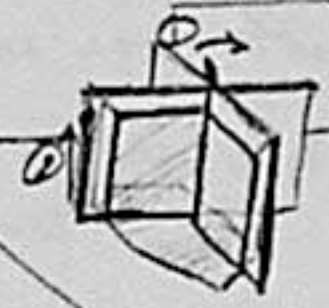
(2)



① MOVE JIGGI over FACET
② SELECT FACET
③ SELECT EXTRUDE

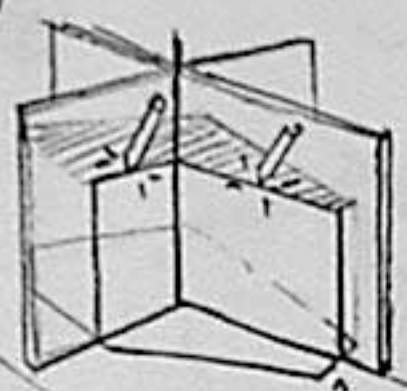


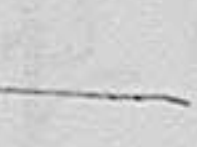
(3)



① TIE action to JIGGI
② DRAG Z slider of to height
③ UNTIE JIGGI

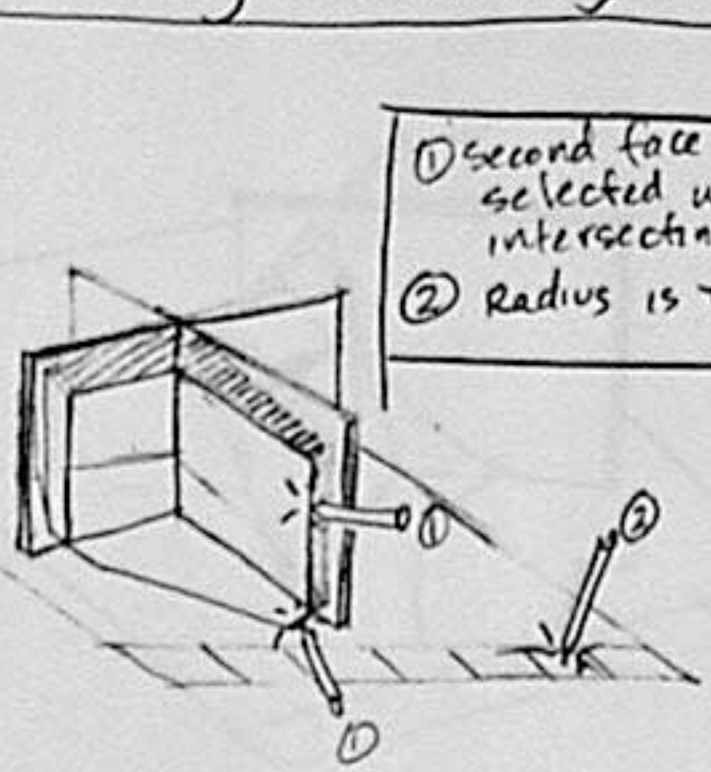
(4)





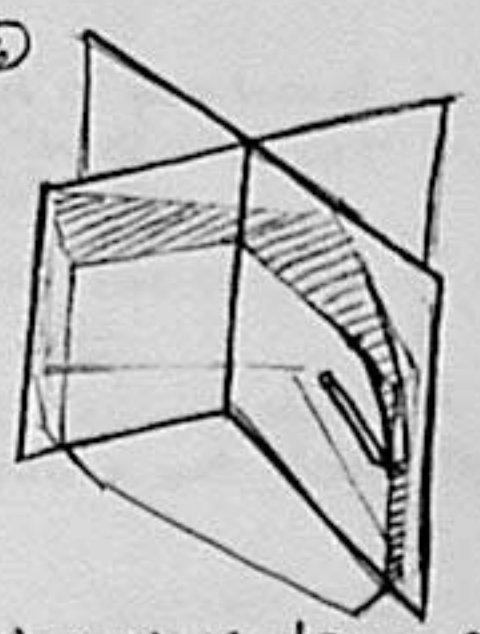
① JIGGI is moved to align an angle to radius face
② Top face is selected by touching 2 intersecting lines

(5)



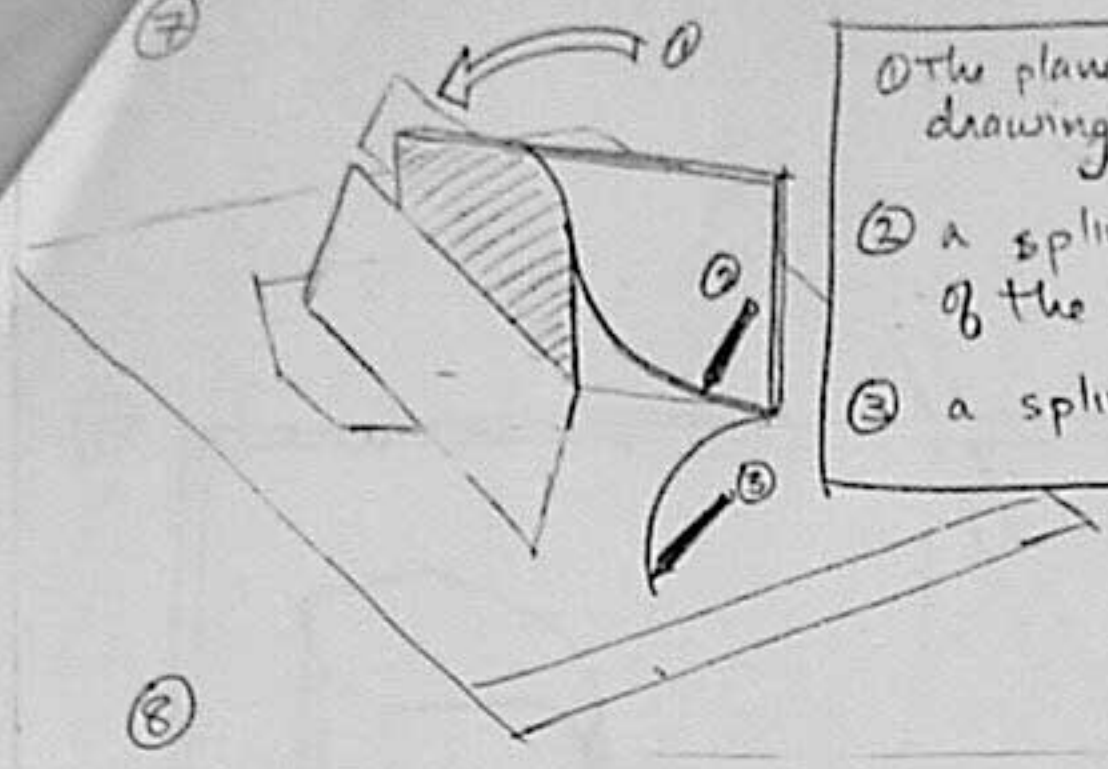
① second face is selected w/ two intersecting lines
② Radius is selected

(6)



① A curve is drawn on the JIGGI computer matches a radius w/ best fit & fillets the 2 faces

(7)

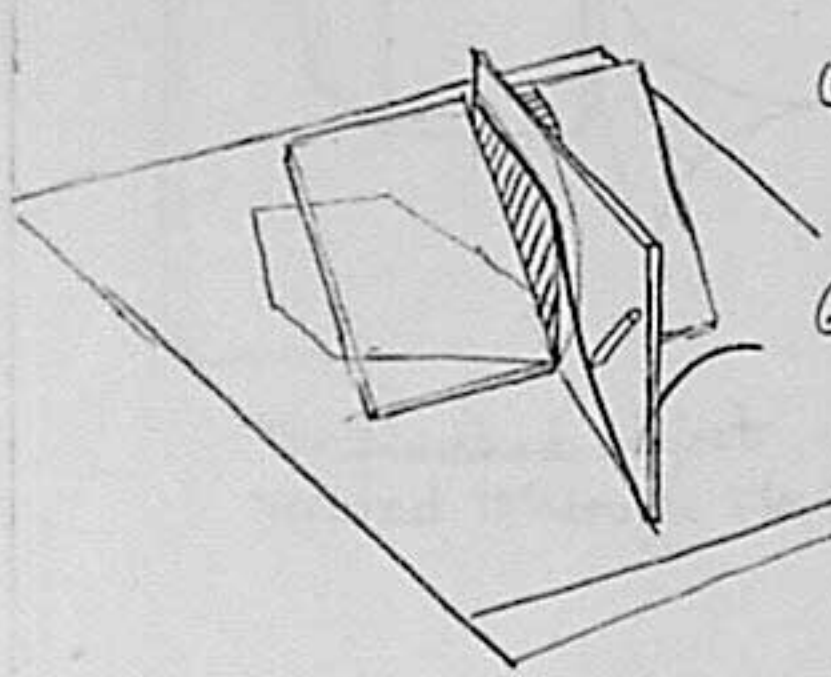


① The plane is rotated to reveal a larger drawing surface

② a spline is drawn to define an edge of the net on the x plane

③ a spline is drawn on the Z plane

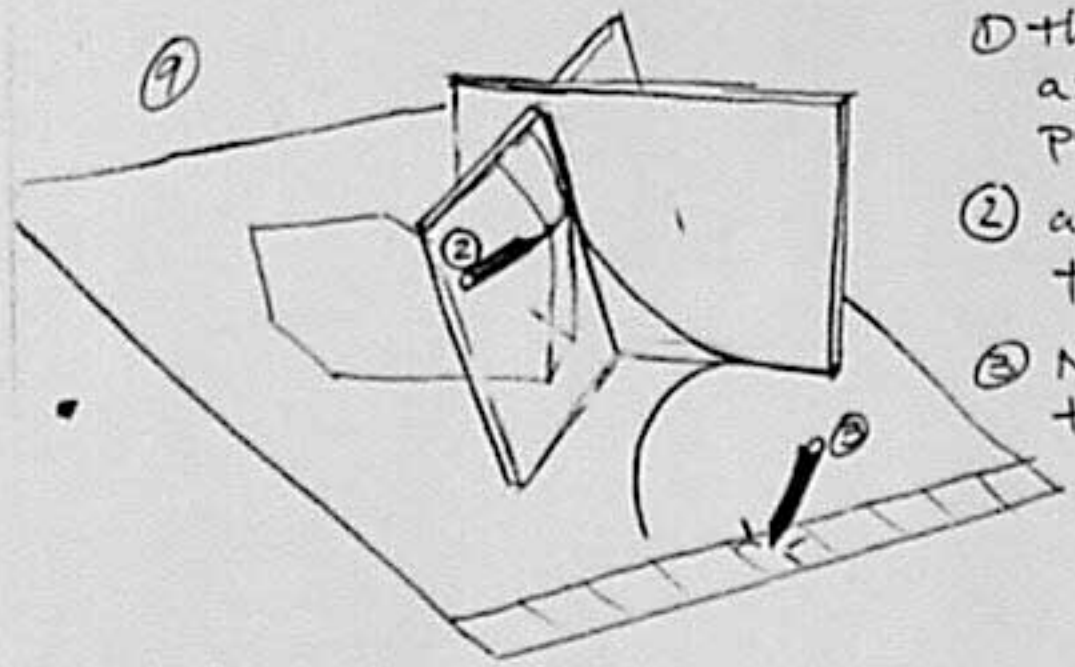
(8)



① The jiggi is repositioned to intersect the other end of the spline on the Z plane and the edge of the solid

② a new spline is drawn connecting the two

(9)

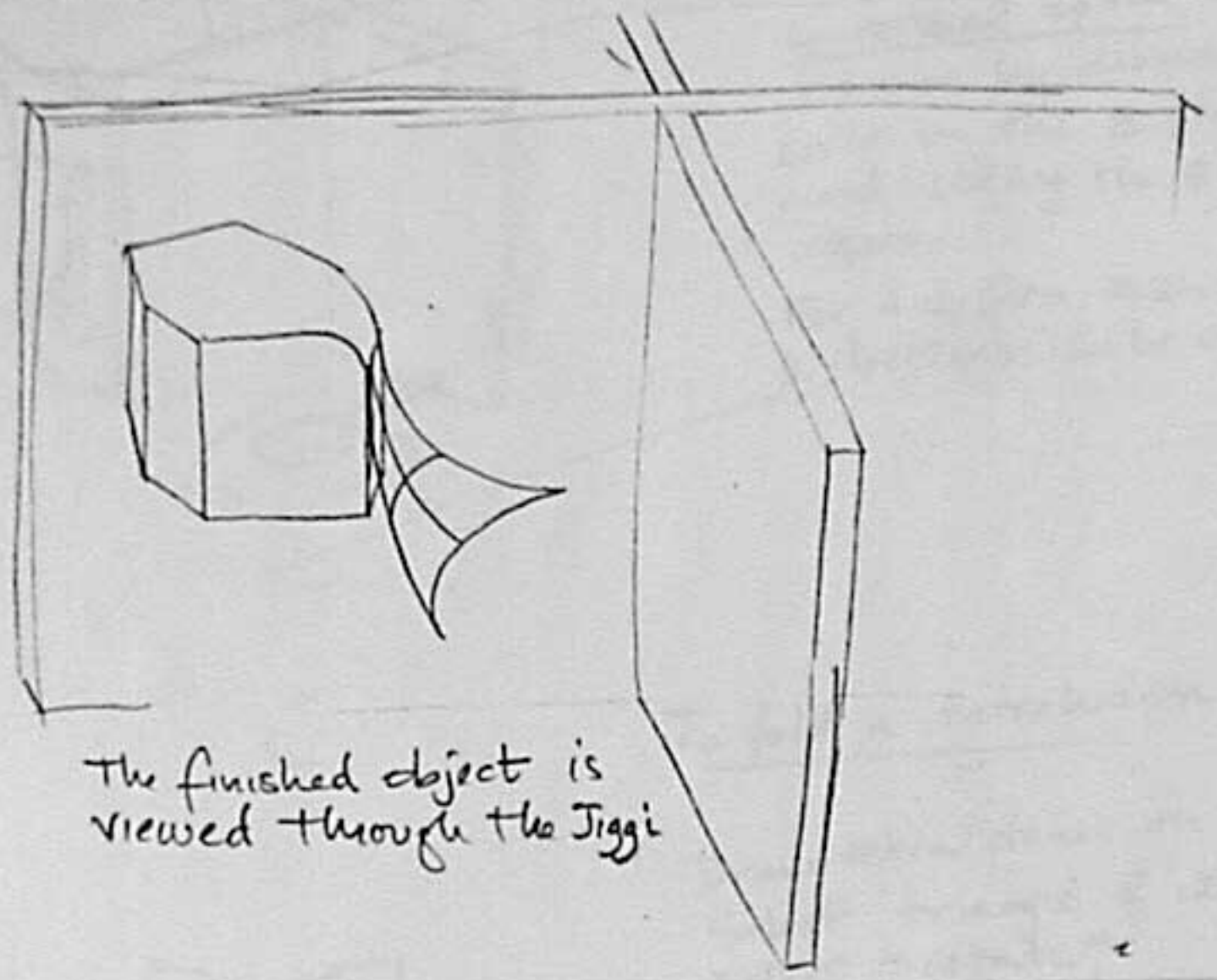


① the Jiggi is positioned to intersect as much of the net as possible

② a final line is drawn to enclose the net

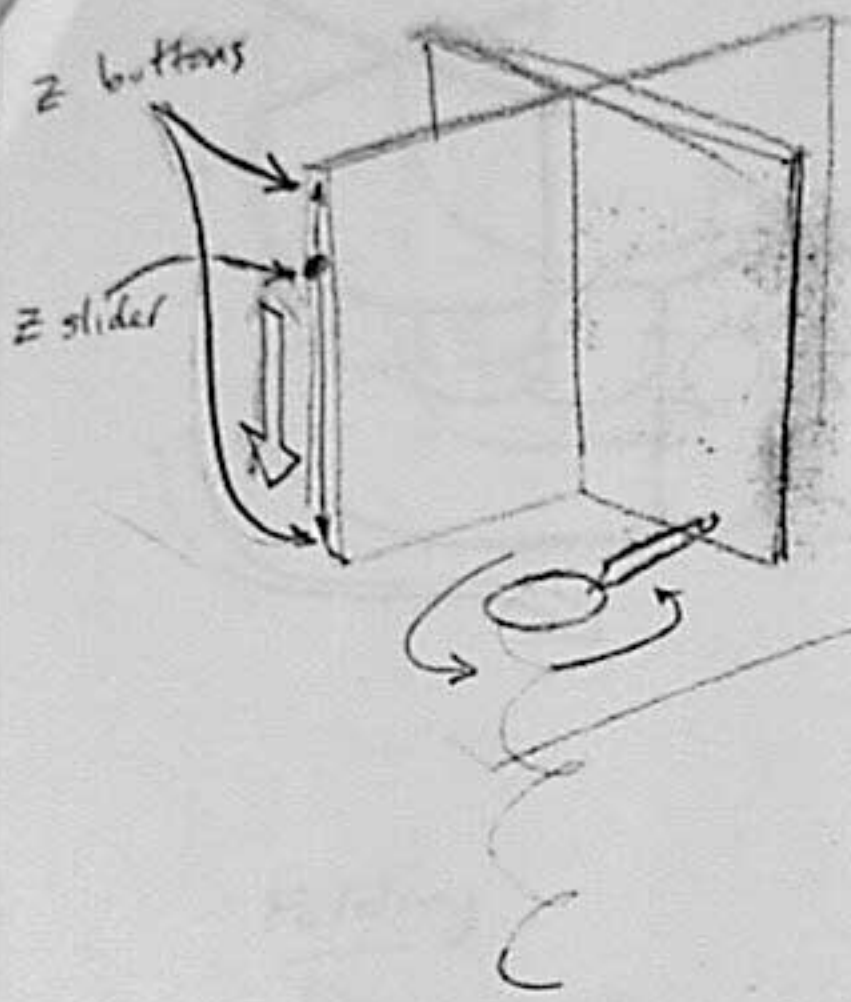
③ Net Surface command is touched to create a net from the outline

(12)

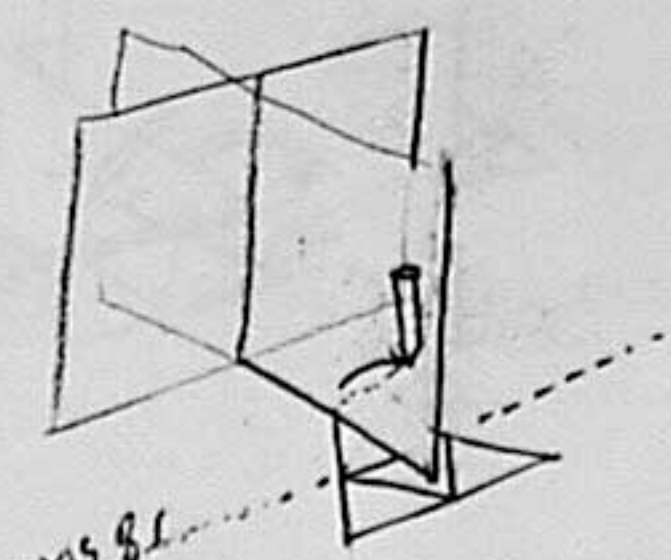


The finished object is viewed through the Jigi

OTHER WAYS TO USE A JIGGI

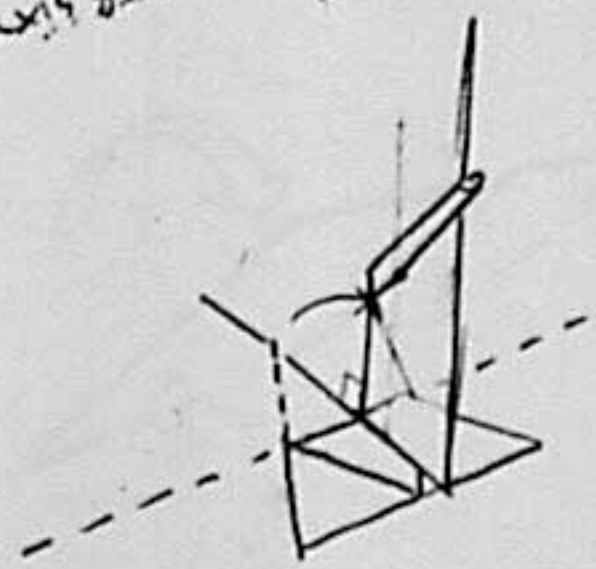


A vertical spiral is drawn by drawing a circle on the ≡ plane and sliding the ≡ slider down.
For a uniform △z, the Z-buttons can be used



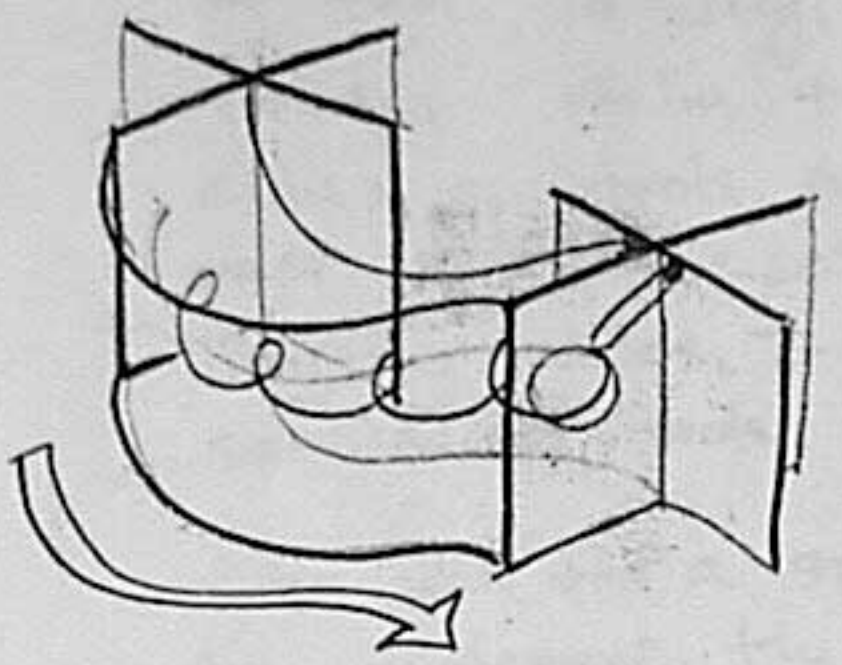
To fold a tetrahedron

Draw tetra planes on ≡
Select triangle of interest
Select "rotate"
specify axis of rotation
use pen to rotate triangle



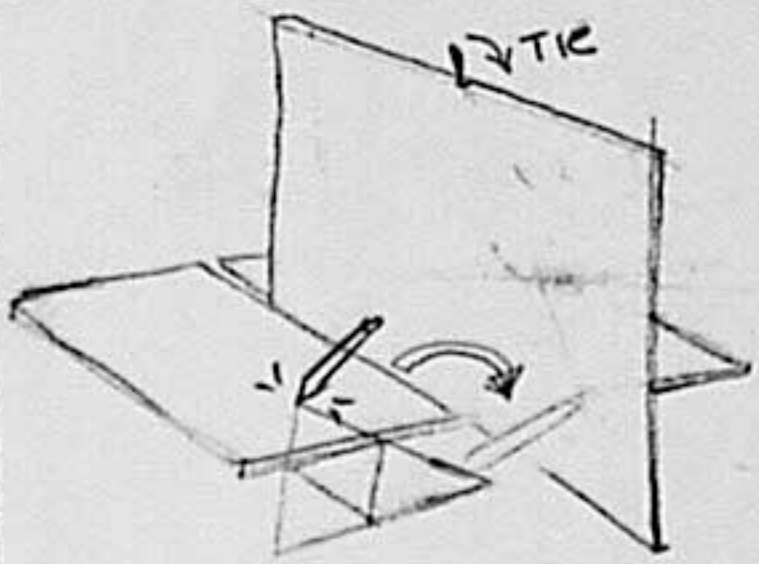
face has rotated 90°

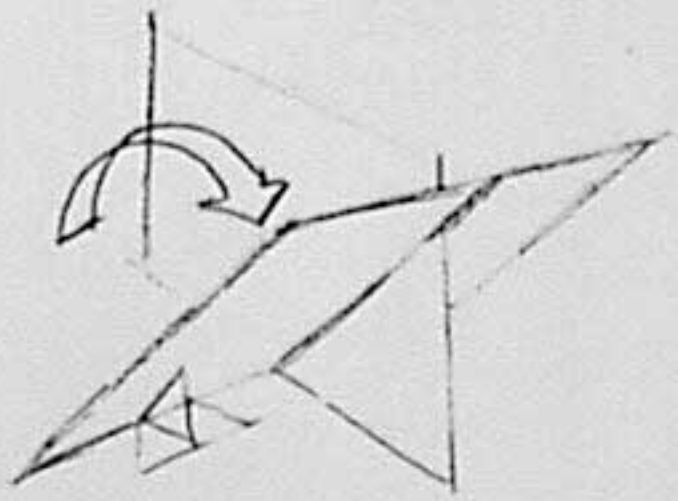
Freehand



A spiral is drawn through space by drawing a circle (5 revolutions) on the x axis while moving the jiggle across the table

Folding





To fold a tetrahedron:

- equilateral triangles are drawn on table (z axis)

Jiggi is positioned w/ y axis at 0° and at edge of a triangle

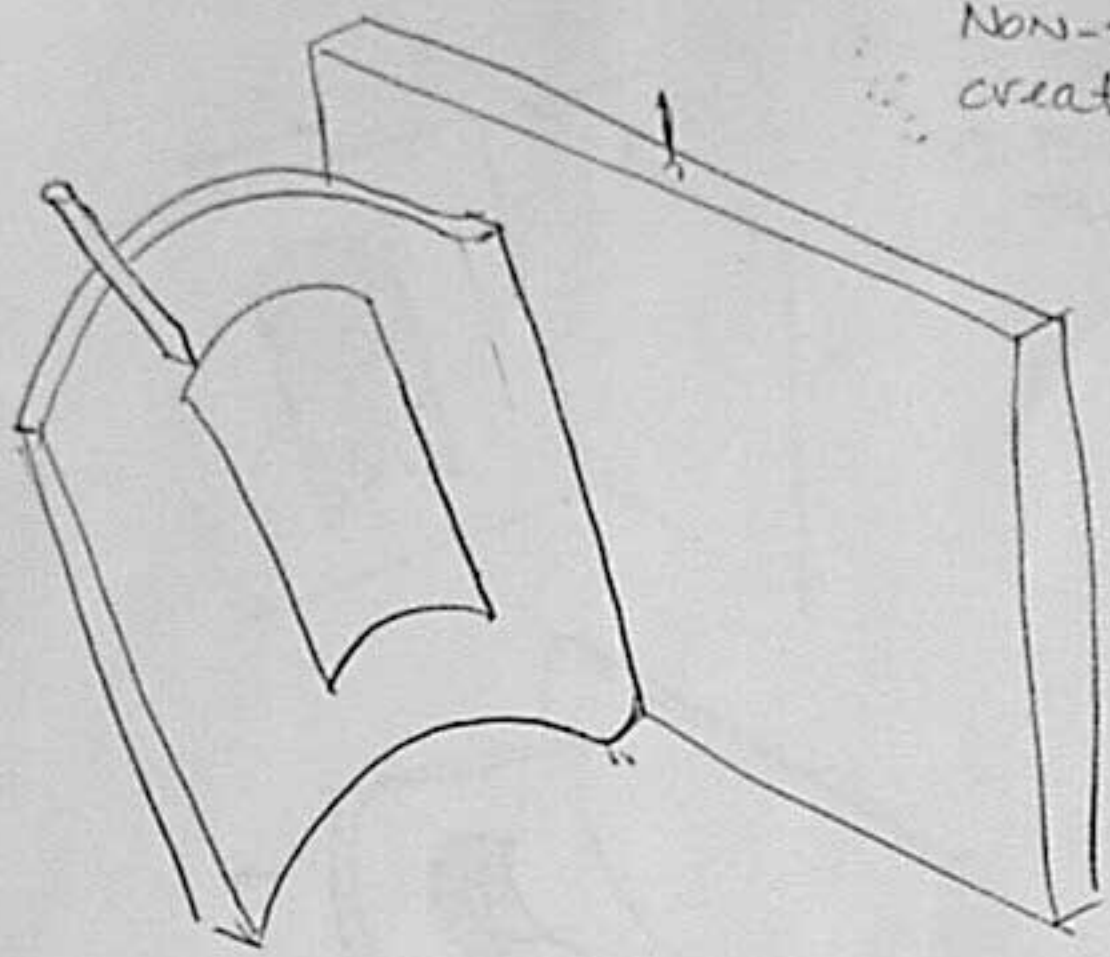
Vertex of triangle is selected w/ pen
Toggle switch is set to "TIE"

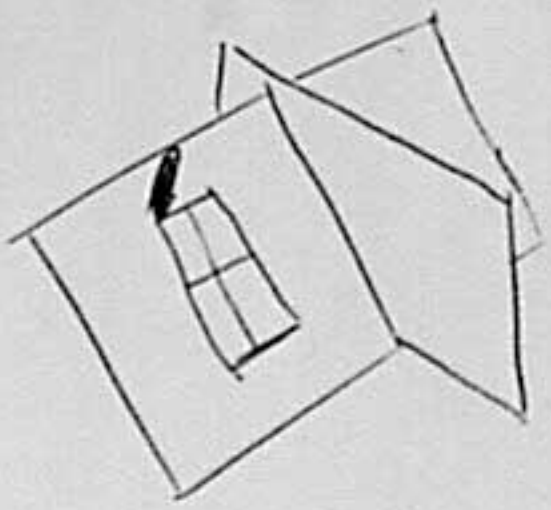
plane is folded to fold face of tetrahedron

A tool like Jiggi opens
a design realm to create a new
class of tools. Architects of the
past used 30°-60°-90° triangles,
drafting tables, T-squares and other
specialized tools.

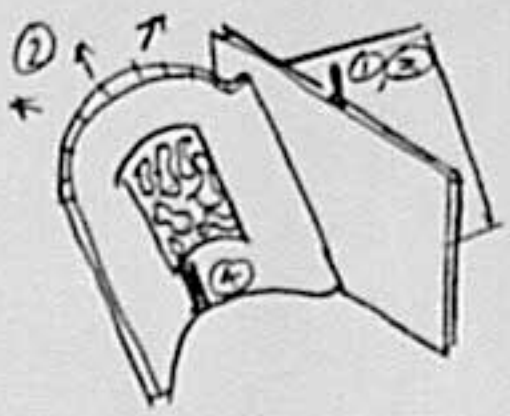
One idea for a specialized tool
to complement the Jiggi follows.
It allows drawing and direct manipulations
of non-euclidean geometries.

NON-EUCLIDIAN Geometry
creation & manipulation

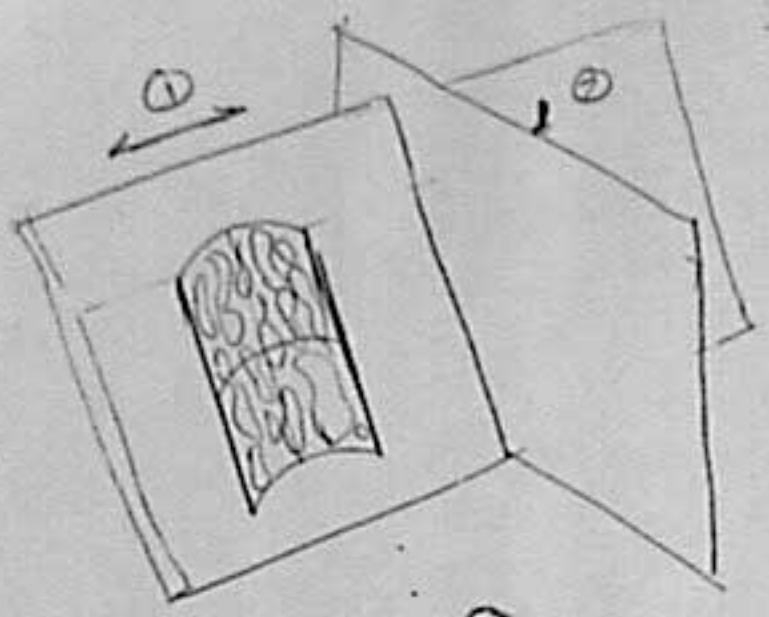




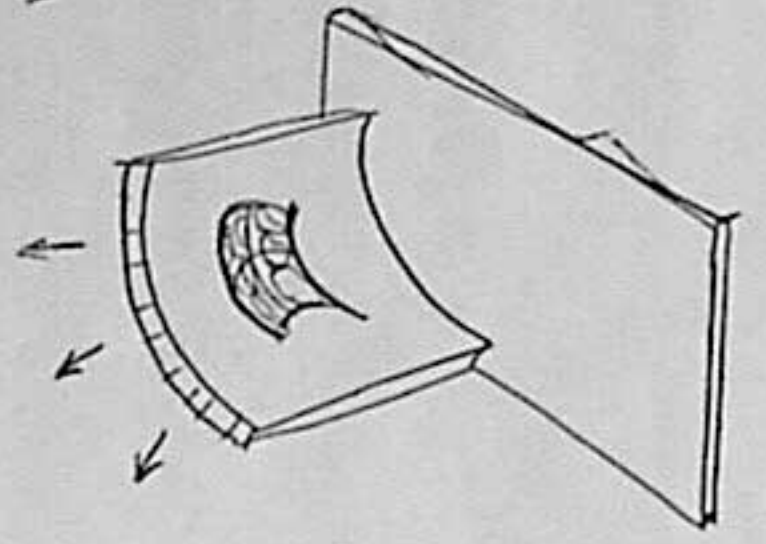
① draw a rectangle (surface)



① TIE the rectangle to the Jiggi
② bend the Jiggi to bend the rectangle
③ UNTIE the rectangle from the Jiggi
④ draw a pretty design on the curved surface



① Flatten the plane
② Tie the rectangle to the plane



① Bend the Jiggi to deform the rectangle on this axis