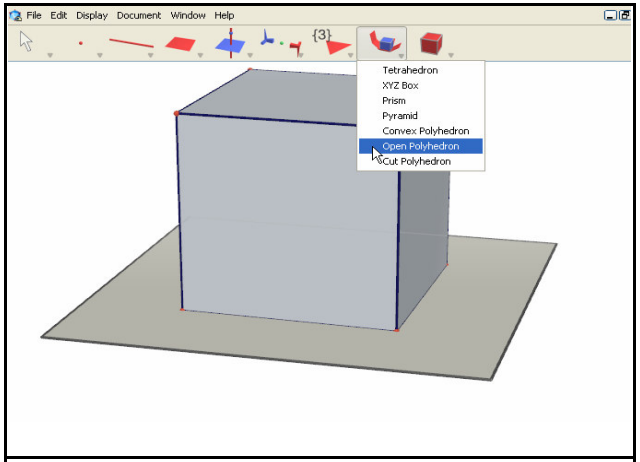
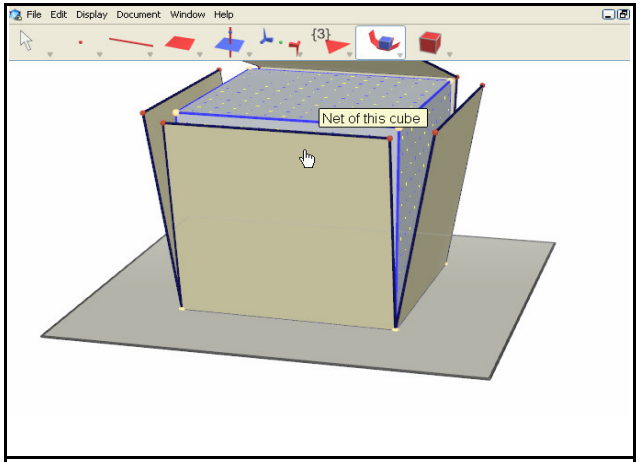


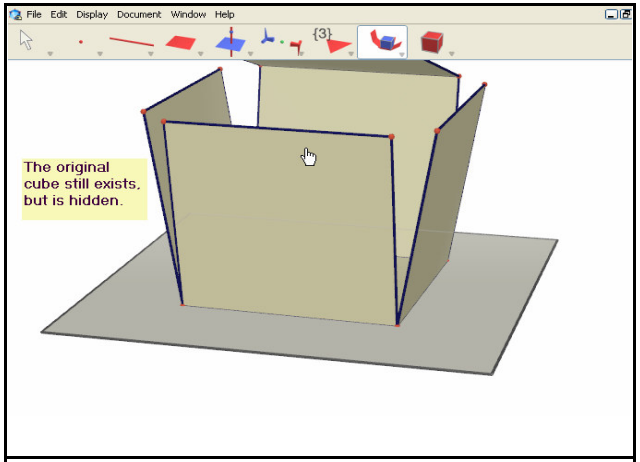
Start by constructing a cube on the grey base plane using the Cube tool in the last toolbox of the tool bar. Now select the Open Polyhedron tool.

1



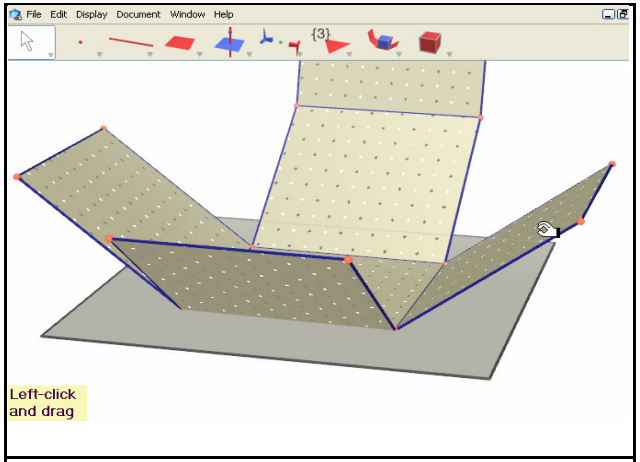
Select the cube.

2



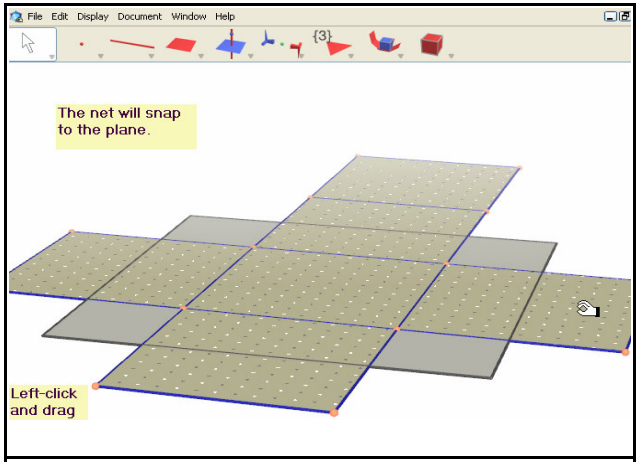
The net is created and the original cube is hidden.

3



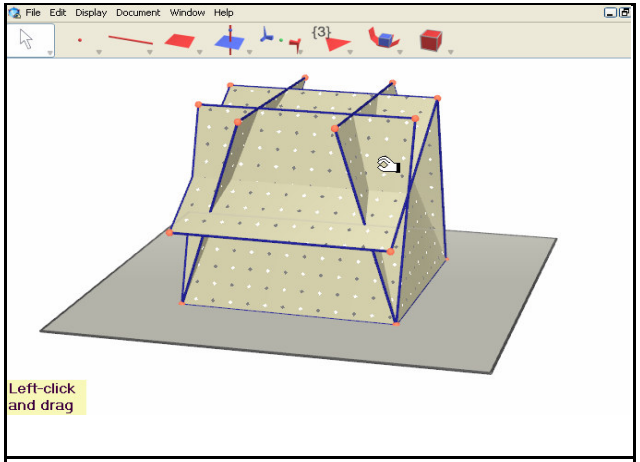
Drag the net to open it.

4



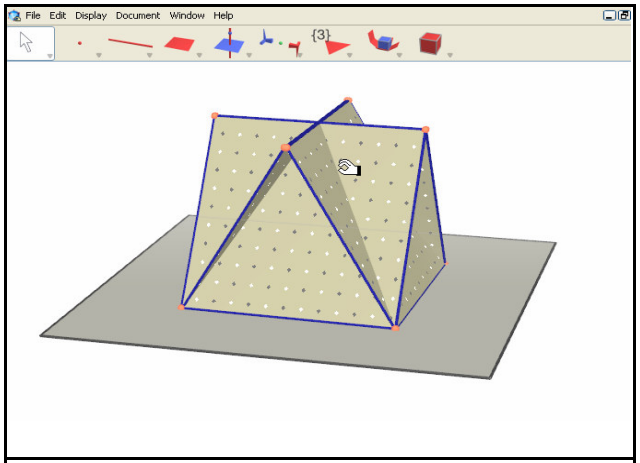
When the net is near the base plane, it will snap to the plane.

5



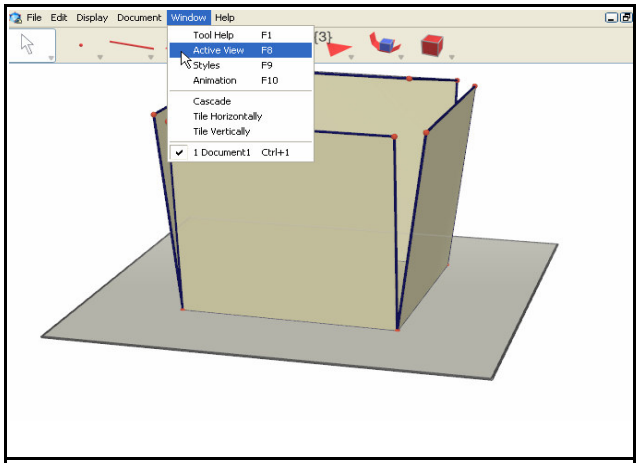
The net can also be folded so that squares intersect.

6



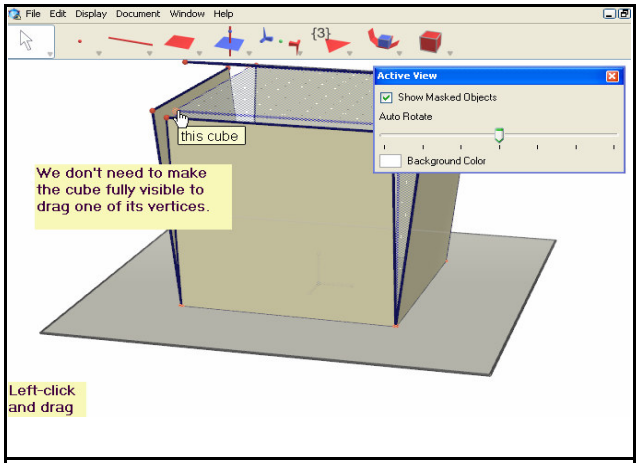
A new shape emerges.

7



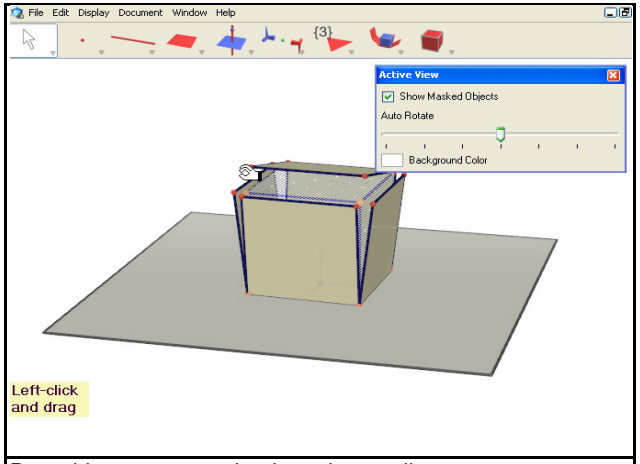
The size of the net can be changed by manipulating the underlying cube. First, make the Active View panel appear.

8



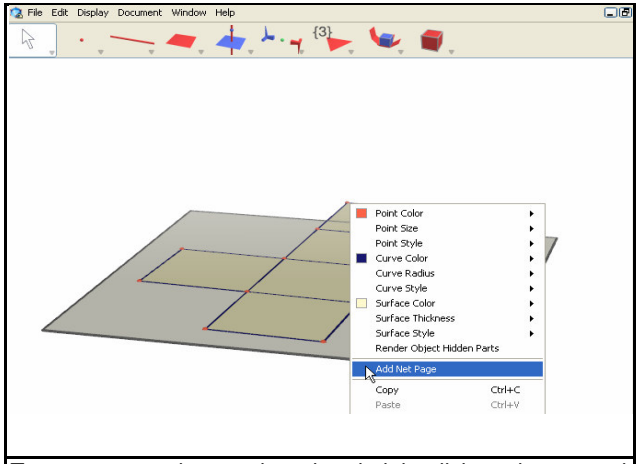
Click on Show Masked Objects and select a vertex of the cube.

9



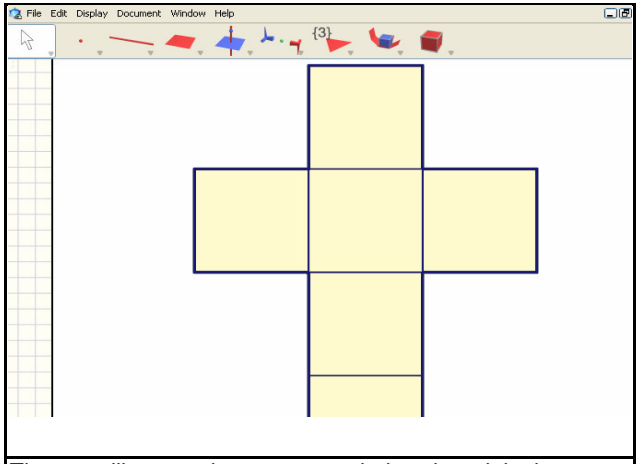
Drag this vertex to make the cube smaller.

10



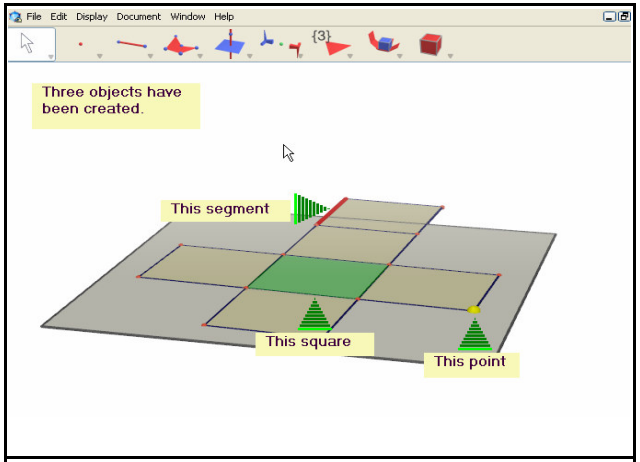
To create a net that can be printed, right-click on the net and then select Add Net Page from the contextual menu that appears.

11



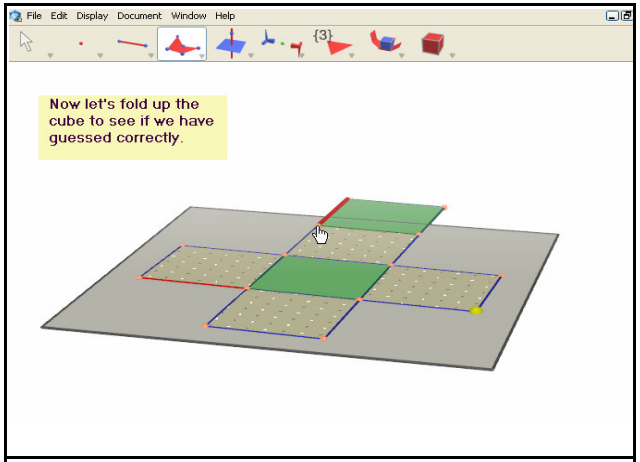
The net will appear in a new page below the original page. Scroll up to return to the original page.

12



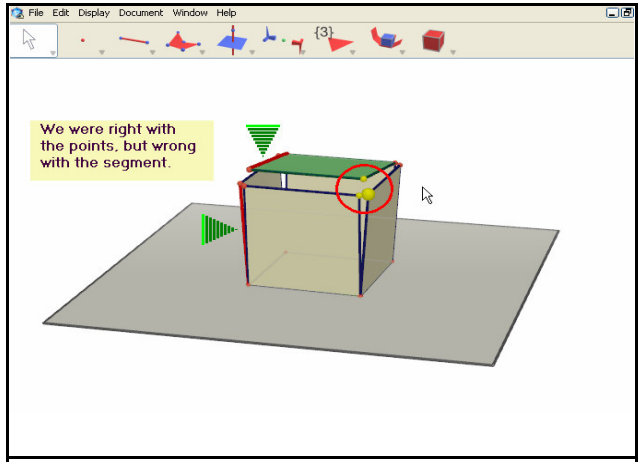
Puzzles can be made using the cube net. The first puzzle involves identifying the points and segments that will meet the ones constructed above when the net is folded and identifying the square that will be opposite the one above when the net is folded.

13



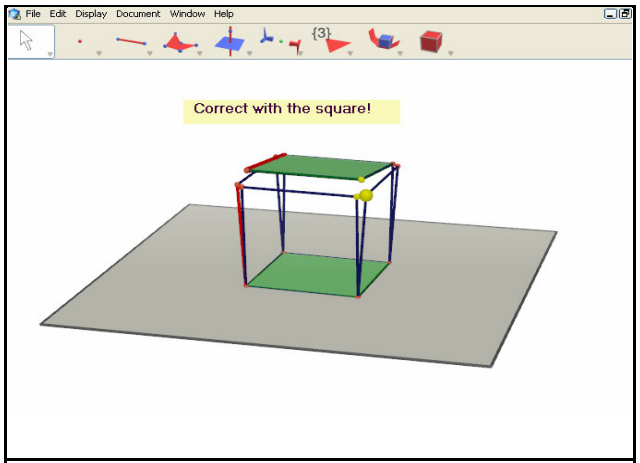
Two points, a segment and a square have been created. The net can be folded to check whether or not these are the correct objects.

14



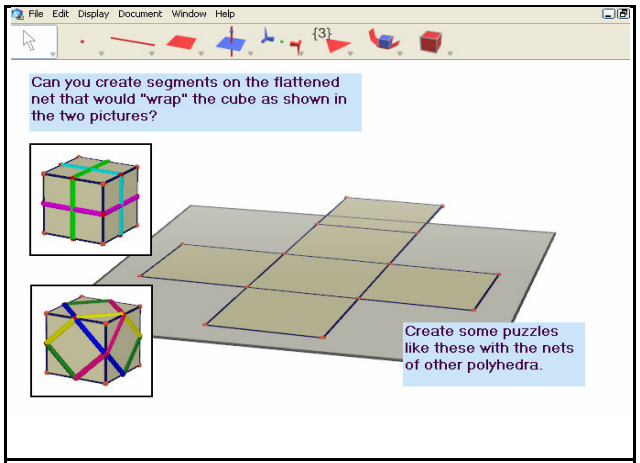
The points are correct, but not the segment.

15



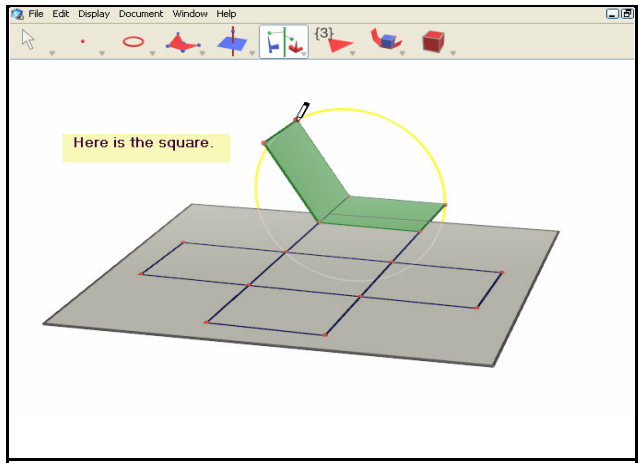
To check whether the square is correct, the contextual menu has been used to make the net transparent.

16



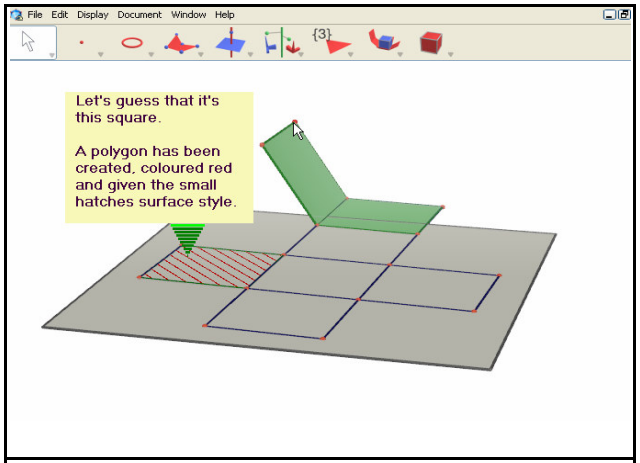
Here are some further puzzles.

17



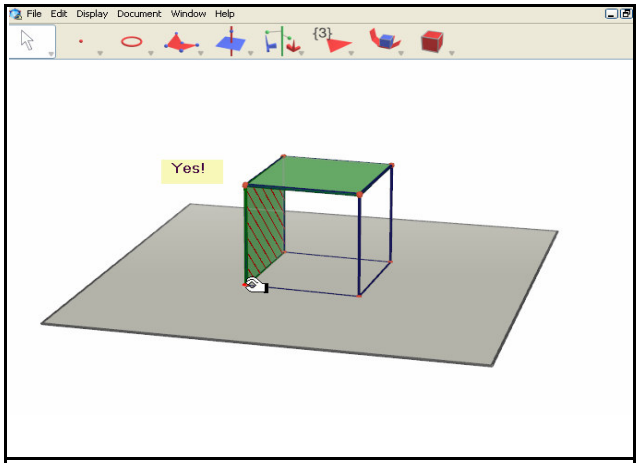
Alternate nets for the cube can also be created. Here, a square has been added to the net by first creating and then rotating a square formed from part of the original net.

18



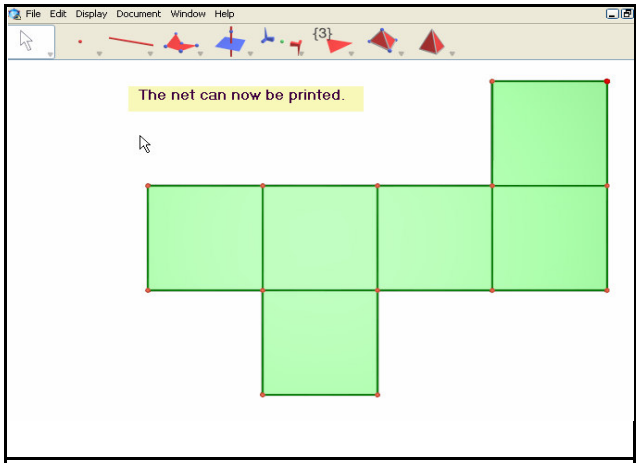
The red square has been created, with the conjecture that this square can be replaced by the new square.

19



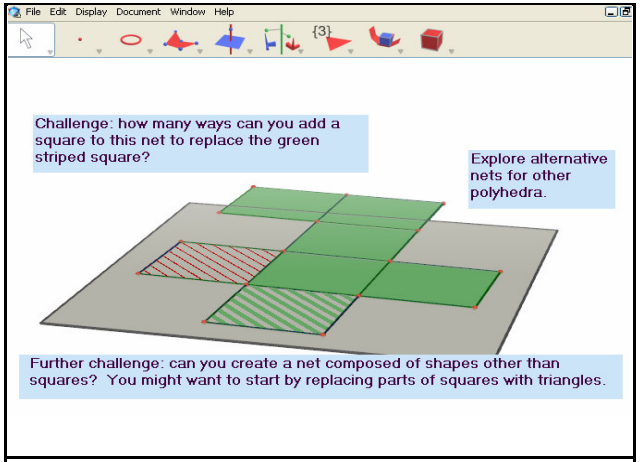
When the net is folded, the new square and the red square coincide. Hence the new square can replace the red square.

20



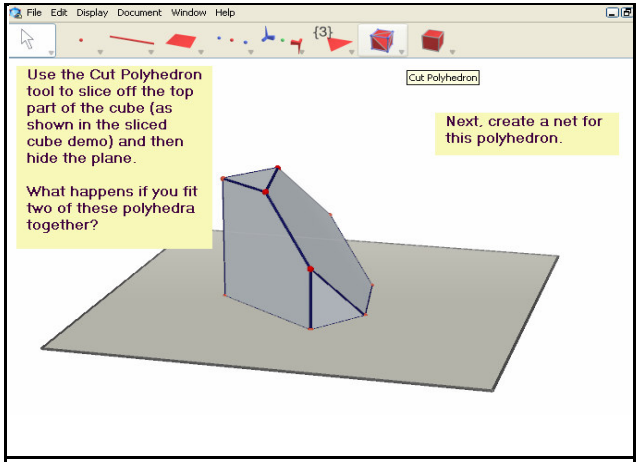
In order to make a net that can be printed, the net has been flattened, further squares have been created and then the red square, the net and the base plane have been hidden. The viewing angle has been changed so that the squares are viewed from directly above the base plane.

21



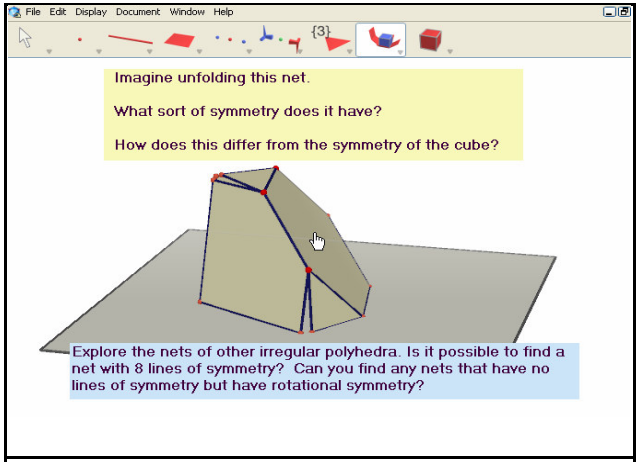
Here are some further puzzles involving alternate cube nets.

22



Nets of irregular polyhedra such as the one above can also be created. Here the Cut Polyhedron tool has been used to slice the cube by a plane which passes through the midpoints of three of its edges

23



The net has been constructed by using the Open Polyhedron tool.

24