HEXAGONS FOR ART AND ILLUSION - Lesson by Greg Rehill

[Editor's note: Greg's lesson assumes you've had experience drawing in EasyDraw. So if you try it and find it too difficult, you can just open up the project file and resave it in your program, and you will not miss having these blocks. Thanks, Greg!]

If one views a cube, be it a sugar cube, a die (singular for dice), or a Rubik's cube, you will always see three of the faces. The outline of the shape will always have eight sides. Being a cube, all sides are the same length. Each side of the hexagon also forms one side of an equilateral triangle when connected to the center point of the hexagon. These principles allow us to create the hexagon using the ARC tool, which creates a perfect circle, and the LINE tool. Each segment of the hexagon equals exactly ½ the size of the block. The basic angle for the intersections is 60°, a common marking on quilter's rulers. To construct the basic hexagon shape, which forms the outer lines of the cube, it is possible to do so using EQ and EasyDraw.

In the EQ7 project file "Hexagon Part I", Block #1 is the start of the construction sequence which carries on through Block #16. The remaining blocks are different examples of the cube derived from the basic block completed at Block #16.

Block #1 & #2 – Drawing the arcs for the basic Hexagon.

Starting with a new EasyDraw block, set up a square block, in this case, 8" x 8"
Set the Horizontal and Vertical Snaps at 16.
The Graph Paper Cells – ON
        Horizontal – 2
        Vertical – 2
Snapping Options:
        Snap to Grid Points on Worktable – ON,
        Snap to Nodes on Drawing – OFF,
        Snap to Lines and Arcs of Drawing – OFF.

Figure 1

Draw 4 ARCS starting at the center point of each side of the block and finishing at the center point of an adjacent side (Figure 1).
Use the SPACEBAR to flip the curve of the arc if necessary (p 155 EQ7 User Manual).

These 4 arcs will form a perfect circle with four points touching the edge of the block.

Now you need to decide how the cube will be oriented inside the Block. In other words, which direction would you like the cube to point. The cube will touch the outside of the block in only two places. Where the next two arcs are drawn will determine the points where the cube is connected to the outer edge of the block.

Draw 2 ARCS starting at a corner and finishing at the center. The inside of the curve of the arc should point to the vertical sides of the block for a horizontally oriented block, to the horizontal sides for a vertically oriented block (Figure 2 for an example for vertical orientation). These 2 arcs will form a semi-circle. Repeat drawing 2 more arcs on the opposite side of the block.
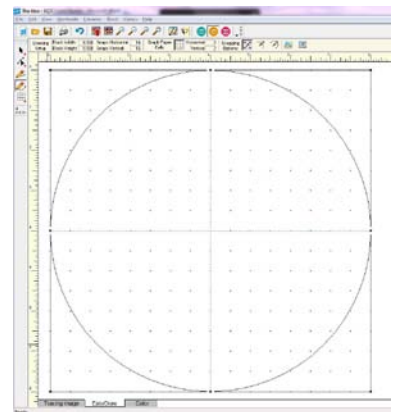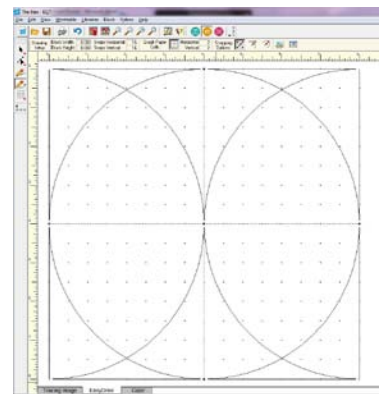

Figure 2

Block #3 – Create the basic Hexagon

After drawing the ARCS, you will notice that there are no node points at the intersections of the arcs. Click the Color tab, then back to the EasyDraw tab to register the nodes (or save to the Sketchbook). You should now have node points where the arcs cross each other.
Turn Snap to Grid Points on Worktable – OFF
Turn Snap to Nodes on Drawing – ON

Use the Line tool to connect the node point at the intersections of the arcs to the node points at the appropriate sides of the block. I will continue using a horizontally oriented block only, so in this case, the node points on the left and right center points of the block. You will be drawing a hexagon inside the circle. (Figure 3)
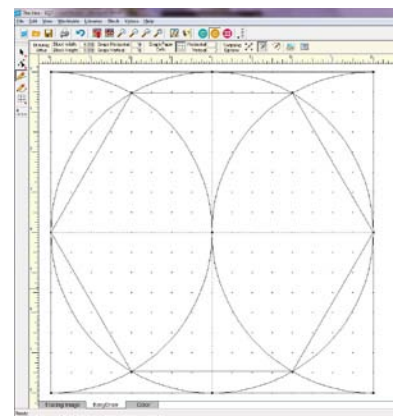
Figure 3

Block #4 – Delete the Arcs

Clean up the design by deleting all the arcs in the design. Click on the Pick tool, hold down the DELETE key and click on all the arc segments in the design. Remember Ctrl-Z (or EDIT > Undo) to restore parts that were accidently deleted. You now have a perfect hexagon. (Figure 4) Add to your Sketchbook as you can do many things with this. Use the Notecard feature to give this block a name so you can keep track of and search for your creations in the future.
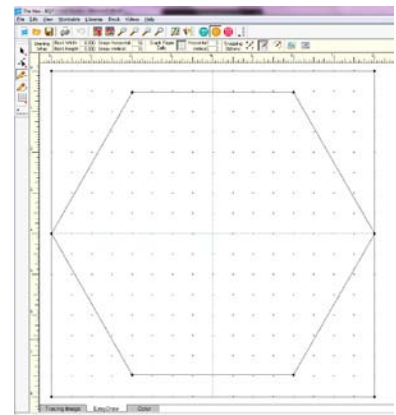
Figure 4

Block #5 – Create a solid cube

Turn Snap to Grid Points on Worktable – ON
Snap to Nodes on Drawing – should still be ON

Draw 3 lines from alternate corners of the Hexagon to the center (Figure 5). Click on Color and colour the three sectors in contrasting colours to show the effect of the 3 sectors (Figure 6). You now have a cube. Add to Sketchbook.
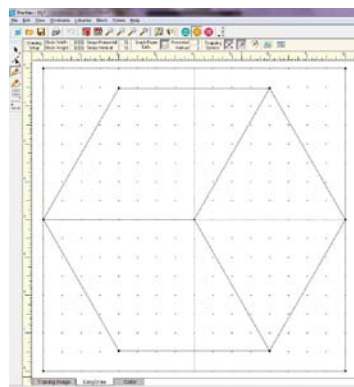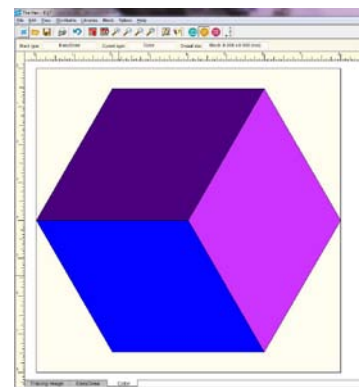
Figure 5   **Figure 6**

Block #6 – Add-a-star

Starting with the block created in Block #4, (Open your Sketchbook and Edit the Basic Hexagon Block) create two equilateral triangles by connecting alternate nodes of the Hexagon (Figure 8). You now have a 6 pointed star and another hexagon formed in the center of the star. Colour as shown.(Figure 9).
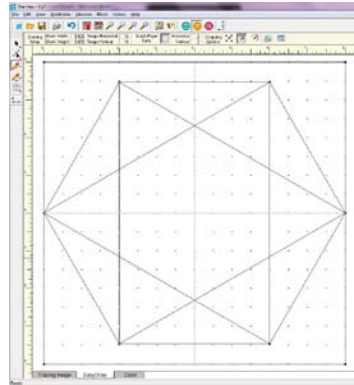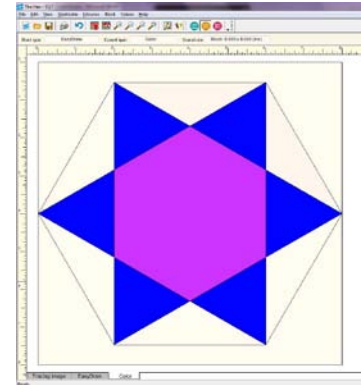

Figure 8

Figure 9

Block #6 – Starring the Cube

Repeat what you did in Block #5 to create a solid cube. Draw 3 lines to the center from the alternate corners of the inner hexagon (Figure 10). Colour the outer points one colour, and the cube that is formed in the center 3 contrasting colours (Figure 11). Your star now has a cube as a center piece. Add to Sketchbook.
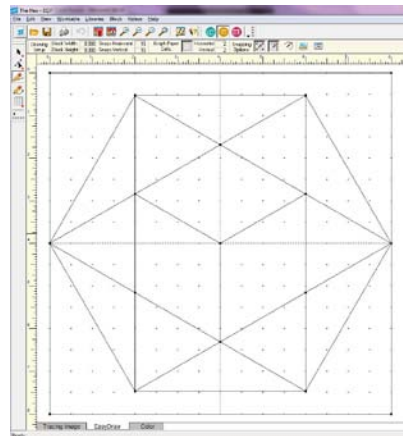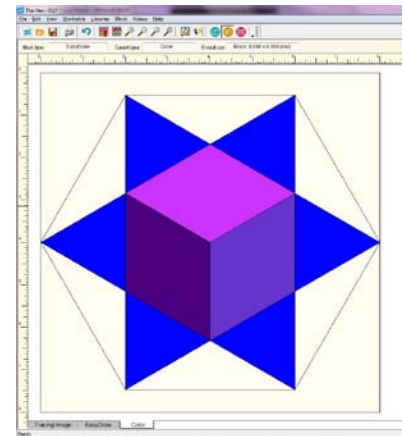

Figure 10

Figure 11

Where to from here? In next month's lesson we will use the Basic Hexagon we created in Block #4 to create an "Open Faced Cube" using the tools available to us in EasyDraw. We will also explore the many variations of this cube that will give you a chance to explore the features of EQ while giving you some new techniques to enhance your skills.

ABOUT GREG:

Greg lives in Parksville B.C. himself he writes: "Parksville is a golfing, curling, dog agility and papillons, who has earned Life Agility and has been 6th in B.C. computer background dates back purchased EQ7, we took some virtual" quilter. I have always and so began designing using
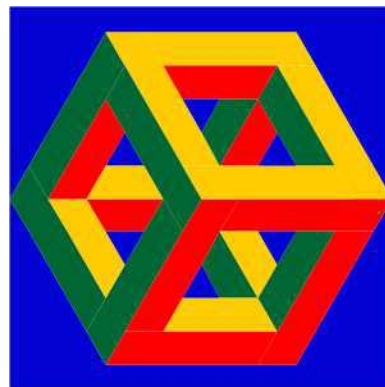
When asked to tell us a bit about retirement dream community, enjoy quilting. The dog is Elbee, one of four Time Achievement Award in Dog and 10th in Canada in his group. My to the 60's. When my wife Winnifred on-line courses and I became a " been intrigued with optical illusions , EQ7."