

# About the G4G16 logo – Scott Kim



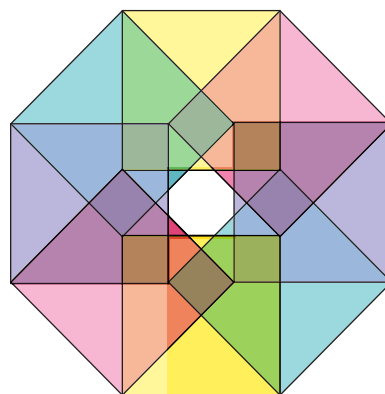
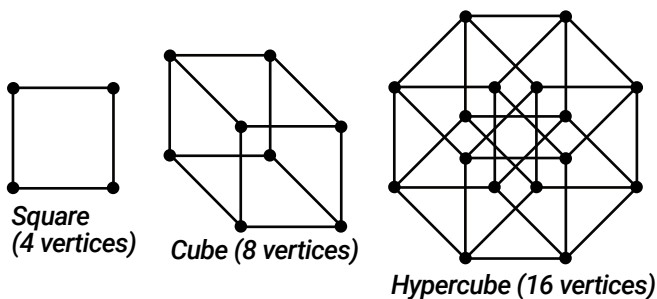
*G4G16 logo*

The Gathering 4 Gardner is a biannual conference that honors science writer Martin Gardner, who wrote a lively column called Mathematical Games for Scientific American magazine 1957–1981.

His column celebrated the joy of mathematics, puzzles, magic, and Lewis Carroll, and often debuted new discoveries in recreational mathematics. I was thrilled to be among Martin's large army of contributors and correspondents.

Starting with G4G5 I have designed a different logo for each conference, based on mathematical properties of the conference number, and the logo for G4G16 is no exception. Every logo is intended as a visual puzzle for the conference attendees to unravel.

One of my favorite mathematical shapes is the hypercube (4-dimensional cube), which has 16 vertices. Just as you stretch a square (4 vertices) to get a cube (8 vertices), so you can stretch a cube to get a hypercube (16 vertices). In general an  $n$ -dimensional hypercube has  $2^n$  vertices.



*4d hypercube in transparent colors*

There are many ways to draw a hypercube, but this particular drawing is my favorite. Look carefully and you will see that there are 16 vertices, 32 edges (all the same length), 24 square or rhomboidal faces, and 8 cubical "3-faces" (the highest-dimensional faces of a 4-dimensional solid are three-dimensional forms).

Keep in mind that this is a projection of a 4-dimensional object into 2 dimensions, to the drawing doesn't give you much sense of what the 4-dimensional form is like.

Thus when G4G16 rolled around, I naturally thought of drawing a hypercube. But how could I add an extra layer of meaning that tied it to the Gathering for Gardner?

When I was about to submit my first sketches for the logo, I took a second look at the hypercube, and realized I could draw a nice G using edges of the hypercube. Even better, I could draw a good 4 in the middle using additional edges, and the G and the 4 connected in an interesting way. This magical coincidence sealed the design of the G4G16 logo.

All that was left was to choose an accompanying font. I chose Futura – a classic highly geometric font that complemented the hypercube nicely, and added colors in rainbow order to continue the coloring of the hypercube.

The coloring gives the illusion of transparency, which makes it easier to see the squares and cubes in the hypercube. I added a white glow to the central 4 to separate it from the rather dark center.