

# Beaded Cubes

with string & pony beads

by Gwen Fisher, 2015



www.beadinfinitum.com

## What is a Beaded Cube?

To understand what a beaded cube is, imagine a cube with 12 edges. Edges are line segments. Also, beads have holes, and you can think of a bead hole as a line segment. So place one bead (hole) on each edge so that the 12 bead holes are aligned with the 12 edges of the cube. Since cubes are made up of squares, and a square has 4 edges, each loop of string on a beaded cube has 4 beads on it. On a cube, 3 faces meet at each vertex (corner), which is precisely where the string meets on the beaded cube.



Cube

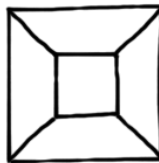


Beaded Cube

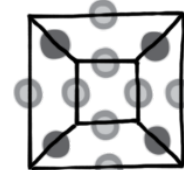


Beaded Cube

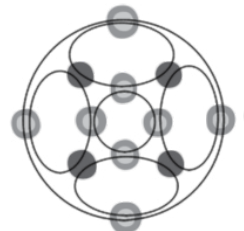
A problem with beaded cubes is that we cannot easily see all of the beads at once. So we draw our pictures of cubes by flattening them into graphs. In this flat graph, the edges of the cube don't overlap. We can place beads on the graph, one bead on every edge. Then, draw 6 loops of 4 bead each, for the 6 square faces.



Graph of Cube

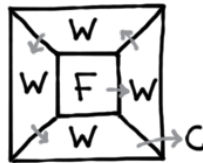


Beaded Graph

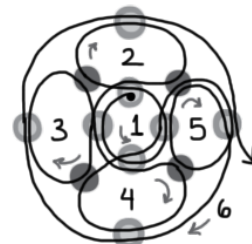


Beads & Thread

We will stitch the 6 loops in order, starting with the floor, then up a wall, then around to stitch all 4 walls, and end with the ceiling.



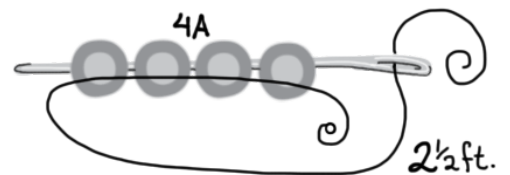
Stitch Order



Stitch Order

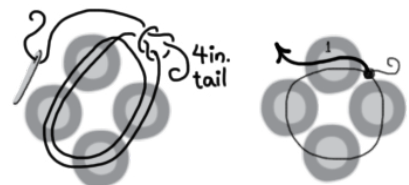
## Start Beading

To make a beaded cube you will need **12 plastic pony beads (8 A and 4 B)**, a **needle (size 18 tapestry)** and **string**, cut to 75 cm (2 and 1/2 feet). Thread your needle (single, no knots). Pick up 4 beads in color A. Pass through all of the beads again, starting from the side with the tail. Pull the ends tight, leaving a tail that is about 4 inches long, enough to tie a knot with the other end twice.



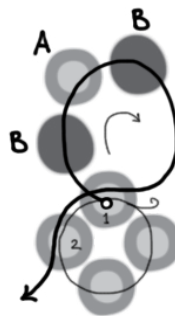
Start Beading

Tie a square knot with both ends.



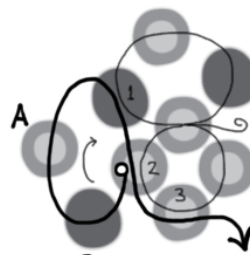
Pass through the first bead. That finishes the floor.

Wall 1: Pick up 3 beads: BAB. Pass through the same bead you are currently exiting (from the side with the tail), and pass through the adjacent A bead in the floor.

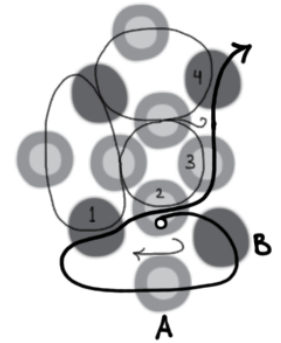


Wall 1

Wall 2: Pick up 2 beads: BA. Pass through the closest B in the previous loop and the bead where you started this step. Pass through the adjacent A bead in the floor.



Wall 2



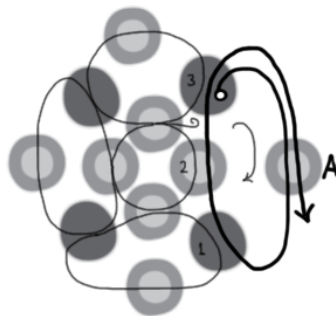
Wall 3

Wall 3: Repeat Wall 2. Pass through the adjacent B in Wall 1.

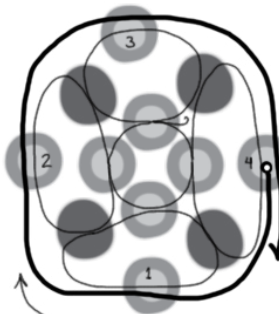
Wall 4: Pick up one A bead. Pass up B in the previous loop, A in the floor, B where you started this step, and through the A that you just picked up.

Ceiling: Pass through 4 A.

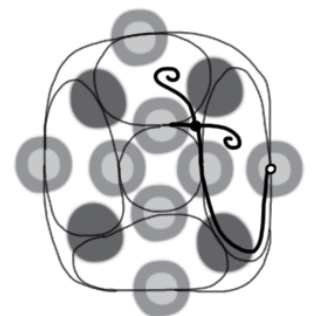
Pass through B and tie two ends in a tight knot. Cut both ends of thread 1/4 inch from knot. Congratulations! You made a beaded cube!



Wall 4



Ceiling



Tie Knot

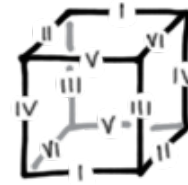
## Challenges

Challenge 1: Use 3 colors of beads, and make all parallel edges the same color.



Challenge 1

Challenge 2: Use 6 colors, and make opposite edges the same color.

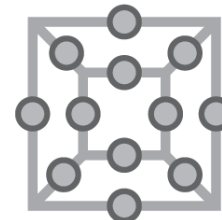
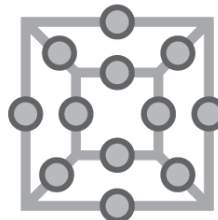


Challenge 2

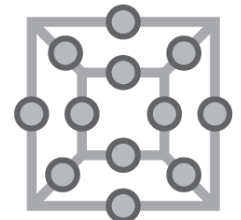


Challenge 3

Challenge 3: Use 3 colors and bead a cube with the edges as shown.



Challenge 4



Challenge 4: Here are graphs of cubes with circles for beads. Label the bead colors in the circles so the arrangements corresponds to Challenges 1, 2, and 3.

Challenge 5: Bead a row of cubes so that the ceiling of one cube is the floor of the next cube. To learn more, search the internet for "cubic right angle weave."



Challenge 5

Challenge 6: Draw a thread path on a graph of a cube so that each bead is connected to all 4 of its neighbors, and the thread passes through each bead exactly twice.

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