

Beaded Cubes

By [Worth Sharing](#) | Sep 4, 2015

Make some beautiful cubes from beads this weekend. Easy? Are you ready for the 4 challenges at the end of the activity?

Duration:

00 hours 40 mins

Introduction:



Mathematics illuminates the patterns that abound in our world. The National Museum of Mathematics strives to enhance public understanding and perception of mathematics. Its dynamic exhibits and programs stimulate inquiry, spark curiosity, and reveal the wonders of mathematics. The Museum's activities lead a broad and diverse audience to understand the evolving, creative, human, and aesthetic nature of mathematics.

Sharing one wonderful activity from their [website](#). Do it yourself this weekend.

Activity Steps:

BEADED CUBES

with pipe cleaners & pony beads

by Gwen Fisher, 2014 
www.beadinfinitum.com

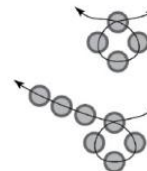


Since a cube has 12 edges, the simplest beaded cube has 12 beads with one bead hole aligned on each edge. You can also make a beaded cube with more than one bead per edge like those shown above. Since cubes are made up of squares, and a square has four edges, each loop on a beaded cube has four beads (or four sets of beads). On a cube, 3 faces meet at each vertex (corner), which is precisely where the wire meets on the beaded cube.

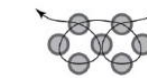
To make a beaded cube with pipe cleaners and pony beads, first, decide how many beads you want per edge. Use one 12" pipe cleaner for one bead per edge. Twist two pipe cleaners together for three beads per edge as shown to the right. Twist three pipe cleaners together for a giant cube with five beads per edge.



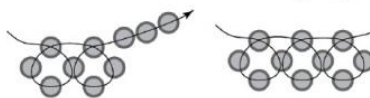
Pick up three beads (or three sets of beads). Fold the pipe cleaner in half and center the beads at the fold. Pick up one more bead (set) and pass the other end through this bead in the other direction. Pull both ends of the wire to make a tight loop.



With the left end, pick up three (sets of) beads.

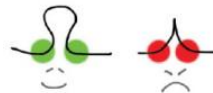


Pass up the bead (set) on the left and through the first bead (set) you just added. Pull the wire to make a tight loop.

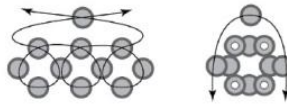


Now do the same thing on the right to make a third loop.

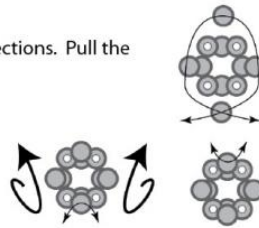
Wire Tips: When you guide the wire through the beads, pull slowly and avoid kinks. Always try to keep the wire smooth. If it kinks, smooth it out. Sometimes it is helpful to loosen the previous loop to keep the wire smooth while feeding the wire through the beads.



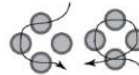
Pick up a bead (set) and pass both ends through it in opposite directions. Pull the wire tight, and the project will curl. Pass the left end down the bead (set) at the far left and pull tight. Then do the same thing with the right end.



Pick up the last bead (set) and pass both ends through it in opposite directions. Pull the wire tight. You're almost done, but there's one more loop to make.



Rotate the bead work up 90°.



Pass the left end down a bead (set) and right through a bead (set). Repeat on the right and pull the wire tight. Tuck in the wire ends and clip the wire with wire cutters. You now have a beaded cube.

Challenge 1: Use three colors of beads and one bead on each edge to bead a cube so that all parallel edges are the same color.



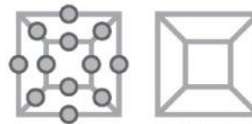
Challenge 2: Use five colors of beads and three beads on each edge to bead a cube so that the corners are four different colors and opposite corners are the same color.



Challenge 3: Bead a truncated cube by following the same steps for the beaded cube, but add extra beads at every corner.



Challenge 4: Here are graphs of a cube with and without beads. Trace the path of the wire on the graphs. What do you notice?



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Category: Classroom Resources

Subject: Arts
Mathematics

Board: All boards

Grade: Class 3-5

Class 6-8

Class 9-10

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