

## Activity: Polymer Clay Millefiori Cane Beads

**Objectives:** Students will show an understanding of how millefiori beads are constructed by making some of polymer clay.

**Age:** approximately 10 through Adult

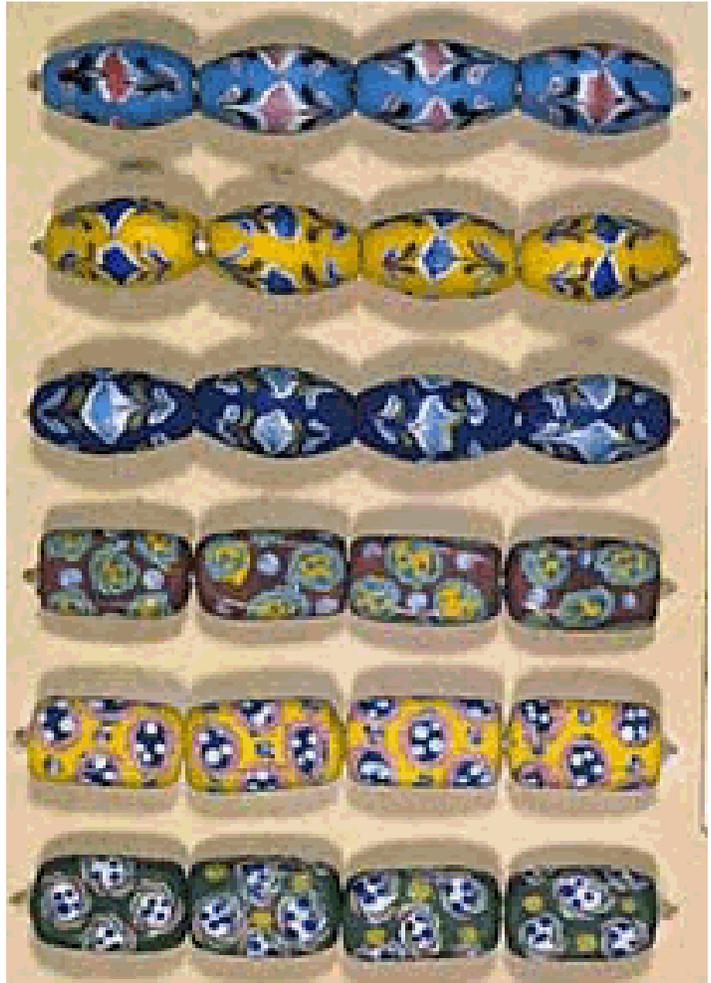
**Time Required:** one hour to form and cut beads; 30 minutes to bake; 30 minutes to string

### Museum Web site URL:

<http://www.museum.state.il.us/ismdepts/anthropology/collections/Frost>  
Frost Trade Bead Collection online

[http://www.museum.state.il.us/exhibits/barker/techniques/tech\\_millefiori.php](http://www.museum.state.il.us/exhibits/barker/techniques/tech_millefiori.php)  
Barker Paperweight Collection Web module with a gallery of millefiori weights and instructions and diagrams of the technique.

**Motivation:** Venetian glass millefiori beads have complex patterns that reflect the multi-step process of construction. Designs are endless, and by going through the process is polymer clay instead of molten glass, more people can understand and appreciate them. Native American tribes traded pelts and other objects for these beads and for seed beads. They saw the advantage of getting many colors of hard, glass beads without having to shape and drill them themselves. This trading eventually caused the waning of the use of porcupine quills and bone and shell beads. It also led to an evolution in beading patterns and techniques, influenced by styles in the larger culture. Learn how these beads were made and adapt the patterns to your own designs.



Although millefiori beads look very complicated in design, the process is simple when broken down into steps. Keep in mind the methods used by glass artists when working with the clay.

### Materials:

For Forming Beads:

- two or more packages (and colors) of Sculpey III® polymer clay (softer to work with than Fimo® and some other brands).
- plastic wrap for rewrapping unused clay
- Plexiglas slab or waxy side of butcher paper for rolling surface
- clay slicing tool (or single edge razor blade)
- wood or plastic brayer or side of a dedicated drinking glass
- toothpick or darning needle for drilling holes in beads

#### For Baking:

- dedicated oven-proof glass dish or plate (obtained at thrift store) (use glass if clay will touch the surface of pan; metal pan is okay if you use wire to string the beads across the pan by its edges—this prevents flat shiny spots on one side of bead)
- oven thermometer
- oven (toaster ovens are okay if the upper coils won't burn the clay and emit poisonous fumes)
- stiff wire pieces
- wire cutter or old scissors
- pot holders

#### For Stringing:

- beading nylon monofilament, beading wire, elastic twine, or beading twine (depending on size of bead holes, and preferences.)
- jewelry findings (such as necklace clasps, earring fasteners, T-pins)
- needle nose pliers
- scissors

#### Precautions:

- Wash hands after handling clay or before changing colors if hands are stained.
- Clean oven (with baking soda solution) after using it to bake clay.
- Do not use pans and utensils for food after using them for clay (buy cheap ones at a thrift shop.)
- Do Not raise oven temperature above 265°. It is better to bake longer at a lower temperature than risk burning and fumes. Read package directions thoroughly.**Procedure:**

Look at examples of millefiori cane designs in the paperweights (and the basic designs in the worksheets). Choose one cane style as your first. Select the clay colors with which you will work. Prepare the clay. *(If teaching this craft to children, try the steps out ahead of time and demonstrate each step for them.)*

#### Preparing the clay:

- cut or pull off one section of the clay from one package
- knead the clay with your fingers until it becomes soft, but not until it becomes sticky or loses its pliability (rest or refrigerate it if this happens).
- Repeat with other colors you will use (estimate how much clay you will need of each color—1/4 of package for main color; 1/8 for secondary colors).

#### Forming Canes:

See attached worksheets.

#### Slicing Canes:

- Use a thin, very sharp cane cutter (purchased at a craft store) or a single-edge razorblade.
- Lay a ruler next to the cane in order to cut multiple slices the same thickness (to form beads of the same size).
- Place the cutter on top of the cane and press down smoothly, cutting through the clay. If clay is too soft, the blade will push the cane flat. If this starts to occur, rest the cane (or put in the refrigerator for 15 minutes) and try again.

### **Forming Beads:**

- You may use the slices directly as cylindrical beads, and drill a hole through them, either vertically or horizontally.
- You can each bead in your palms, forming a round bead.
- Very thin slices can be placed as a veneer over an inner ball of plain or scrap clay. This is a good method for forming large beads. The slices can veneer over a compressed tinfoil ball base, too, to save clay.

### **Drilling Holes in Beads:**

- Hold bead with fingers of one hand while slowly pushing round toothpick or darning needle horizontally through bead. Then turn the bead around and drill hole from the other side (to avoid exit bump).

Or

- Place bead on table. Push needle straight down through bead from the top. Turn bead over and repeat from opposite side. If bead flattens, roll in hands to reform.
- NOTE: Holes can be drilled through baked clay, but you need a drill, and it makes dust.

### **Baking Clay:**

- Read the instructions for baking on the back of the clay wrapper.
- It is important to know if your oven's temperature is actually the same temperature at which it is set. An inexpensive oven thermometer can tell you. Otherwise, set the temperature about 25° lower than the 265° in the directions. That will give you some leeway for safety. The clay will still bake, but more slowly (but it will not burn and give off toxic fumes).
- 1/4" beads should bake in about 20 minutes. If beads are still rubbery after they cool, they are underdone. They can be rebaked for 15 minutes.

### **Assembling Jewelry:**

- String beads on your choice of stringing material. Measure out at least 6 inches extra of the string for ease of tying off.
- Use filler beads bought at a craft store if you are making a necklace to avoid having to make dozens of beads for your first project. They also add variety to the design.
- Tie off each end of the string onto a clasp or screw-in fastener of your choice using several knots. You can avoid having to do this if you use elastic string, which you can tie together at the ends, or if necklace or bracelet is made long enough to slip over head or hand. Try a few alternatives to find one that suits you.

**Illinois State Goals and Standards in Visual Arts addressed:**

**Goal 26: Understand how art is produced:** part of this activity is the introduction through the Morton D. Barker Paperweight Collection's techniques sections that explain how glassmakers formed millefiori canes of glass. The structure of the canes is the part that is covered in this lesson with a safer material, polymer clay. Use materials to create a functional and decorative object.

**Assessment:** Students work should reflect their knowledge of cane structure (e.g., their beads are bull's eye, jellyroll, marbled, or compound designs using two or more colors of clay). They should be able to recognize these basic canes in the online paperweights or other glass objects. They should be able to describe their process and relate it to the glass-cane-making process.

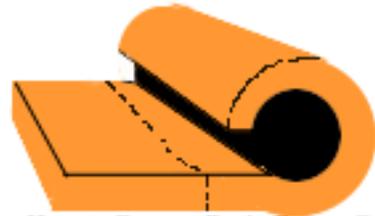
## How to Form Canes:

**Spiral Cane:** Condition, roll out, and size two layers of clay. Roll them up tightly. Slice beads from the cane.



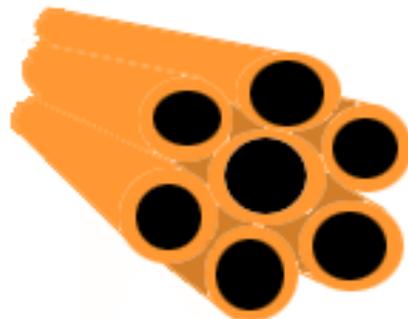
Roll a Spiral Cane from Two Sheets of clay.

**Target Cane:** Condition and roll out a sized layer of one color clay. Make a snake of a second color clay. Roll the flat layer around the snake tightly. Slice into beads.



**How to Form a Basic Target Cane:**  
Roll a snake of one color  
Roll a flat sheet of a second color  
Cover the snake with the sheet  
Cut to fit and smooth it

**Lace Cane:** Make a target cane and roll it out into a long snake. Cut into thirds or fifths and stack together. roll out again. Repeat. Cut into thin slices. Applique them to a ball of clay as a large bead.



**Make a Lace Cane by Rolling 6-7 Target Canes into a Snake. Cut That snake into 6-7 pieces and roll them together again. The slices will look like lace.**