Celestial Clock

Creative Paradise Inc.

Materials:

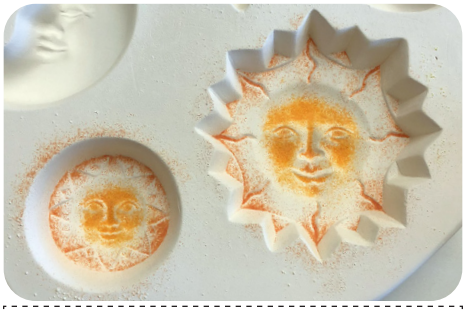
- LF179 Celestial Frit
- GM81 Bend-It Mold
- COE96 Glass (See Right)
- Suitable Glass Separator (We recommend ZYP)
- Frit Placement Tools
- Liquid Hair Spray or Clear Elmer's Glue
- Thin Fire Paper
- Clock Parts
- Liquid Fired White Gold (Optional)

Suggested Glass:

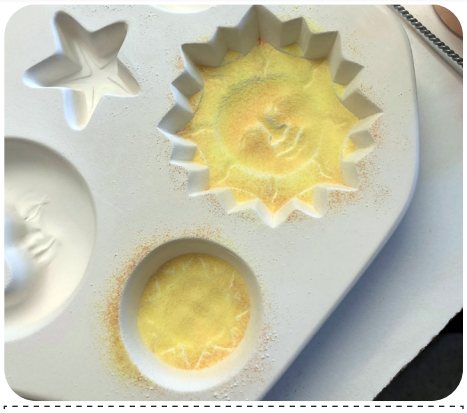
- F1 Powder Frits:
  - Cherry Red
  - Rust
  - Yellow Transparent
  - Navy
  - Pale Blue
- F2 Fine Frits:
  - Canary Yellow Opal
  - White
  - Turquoise Blue Opal
- F3 Medium Clear Frit
- Dichroic Frit (Optional)
- Blue Aventurine Sheet Glass
- Dichroic Glass Scraps

Prepare your molds well with suitable glass separator before starting. We recommend spray-on ZYP. **Always wear a mask when using spray-on separator and/or powder frits.**

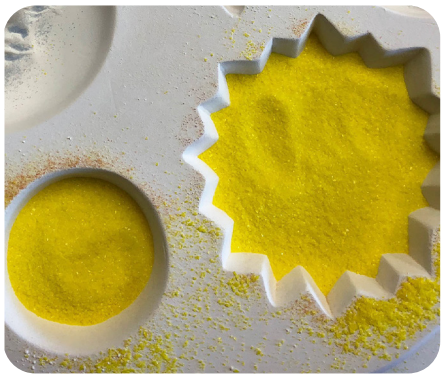
After your mold is primed and dry, begin by adding F1 Cherry Red along the borders and into the faces of the suns.



Place a bit of F1 Rust on top of the Cherry Red in the suns' faces.



Sift enough F2 Yellow Transparent to cover the entire bottom of each sun cavity.



Fill both suns with F2 Canary Yellow Opal until each is roughly 1/4" full of frit. This is about 26 grams for the large sun and 5 grams for the small.

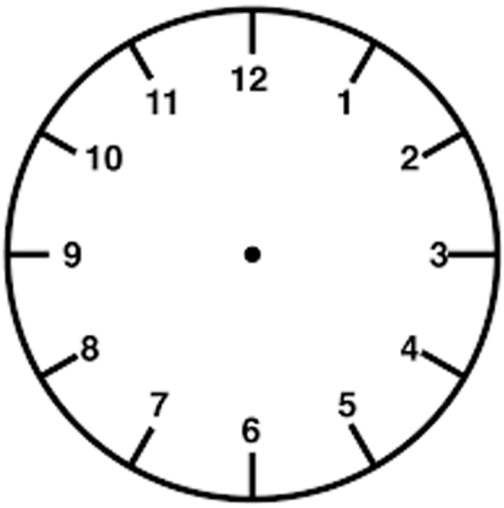
Place F1 Navy into the faces and face-facing edges of each moon and the center of the star.

Add F1 Pale Blue around the faces and a bit further inward from the face-facing edge of each moon.

Fill each moon with F2 White until each is approximately 1/4" full of frit. This is roughly 16 grams for the large moon and 8 grams for the small. Fill the star with F2 Turquoise Blue Opal until also around 1/4" full of frit, or about 2 grams.

Once all the frit is in place, transfer the mold to a level shelf in the kiln and Tack Fire using the suggested schedule in **Table 1** or your own preferred Tack Firing schedule.

Once the glass has fused and cooled, remove the castings from the mold and use a stiff-bristled (but not wire) brush and water to remove any residual glass separator.



Clock Face Diagram
((Print at "Actual Size"/100%))

Table 1: Tack Fire*

Seg.	Rate	Temp (°F)	Hold
1	275	1150	30
2	300	1415	00
3	9999	950**	75

**If using COE90, adjust this to 900° F

*Before firing, it's important to know your kiln. For tips on how to do that, click here to see our Important Firing Notes!

Placing the Clock Elements:

Cut a 5" x 10.5" piece of Blue Aventurine Sheet Glass. Print and cut out the Clock Face Diagram provided above (making sure to print at "Actual Size"/100%) to serve as a template to arrange your pieces of dichroic (**Image 1**).

Arrange the frit castings and Clock Face Diagram as desired, making sure to keep them within the top 7.5" of the Aventurine to leave enough room for the eventual bend. Make sure to keep your clock face oriented straight upright to ensure the clockwork mechanism will tell the time properly.

Cut 12 small (approximately 1/8" x 1/4") pieces of the dichroic glass. Center one piece at each line along the outside edge of the Clock Face Diagram on the glass (**Image 1**). Use a bit of liquid hair spray or a small dot of Clear Elmer's Glue to set each dichroic piece in place then carefully remove the paper diagram. If desired, sprinkle a bit of additional Dichroic Frit around the clock to enhance the celestial scene with a bit more sparkle.

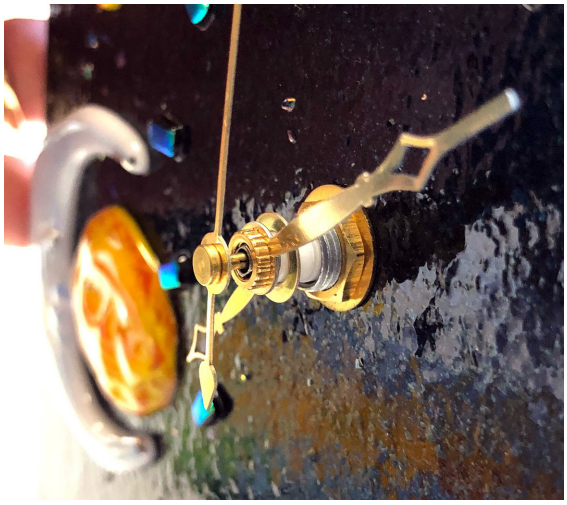
Carefully move the project onto a suitably sized sheet of Kiln Shelf Paper on a level shelf in the kiln and Tack Fire using the suggested schedule in **Table 1** or your own favorite Tack Fire.

Image 1

After the glass has cooled, drill a hole for the clockwork mechanism by first submerging the glass in water then finding the center of the clock face and using a drill with a 5/16” diamond core drill bit (or other similarly sized drilling tool) to drill a hole.

If desired, use a gold applicator pen to apply some Fired White Gold to the eyes on the Suns and Moons, or anywhere else you’d like a bit of shine. The gold will mature in the following firing.

Transfer the project onto a GM81 Bend-It that has already been primed with separator on a level shelf in the kiln, and fire using the suggested schedule in **Table 2**, adjusting as needed for your kiln.



After the project has fired and cooled, remove it from the kiln and add the clockwork mechanism.

Instructions may vary for your specific set, but for the one shown here, begin by placing the black rubber washer onto the shaft, then threading the shaft through the hole in the glass. Place the brass washer onto the shaft followed by the brass hex nut. Gently tighten the brass hex nut until the clock movement is held firmly in place, but not so tightly the glass cracks. Insert the hour hand onto the shaft followed by the minute hand, and finish with the second hand on top as shown above.

Table 2: Bending*

Seg.	Rate	Temp (°F)	Hold
1	250	800	20
2	100	1260	15
3	9999	950**	90

**If using COE90, adjust this to 900°F

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The battery-operated clock part used in this tutorial is a 5/16” Short Shaft Clock. The minute hand is 1.375” long and the hour hand is 1” long.