



Glass Crab

Materials

- 2 sf fusible glass – any color
- 2 – 3/16" or 1/4" diameter nuggets for eyes.
- Optional – glass powder for decoration.

Introduction

This project relies on understanding volume control and temperature control in glass fusing - how the thickness of glass and willingness to fuse together is affected by subtle differences in temperature and how even small differences can produce significantly different results.

STEP 1 - Components are fused at a temperature hot enough to cause the glass to soften and round off but not hot enough to flatten as much as they would if heated to a higher temperature.

STEP 2 – The pieces are then fired to just high enough temperature to fuse together but not high enough to distort the shape.

STEP 3 - Finally, the completed project is heated enough for the glass to bend but not high to affect what happened in Step 1 or Step 2.

Cutting

Cut out 3 of each of the LEG & BODY pieces.
Cut out 2 of the MAIN SHELL pieces.

Preparation

Grind or sand as needed to make the pieces match. They don't have to be perfect because the fusing will draw everything together but you do want to smooth out any curves and remove any spikes.

If you plan to add glass powder for color variation, set out a single layer of all the pieces on the pattern and sift or sprinkle on frit or powder as wanted for effect.

If you have little experience adding frit or powder for coloration, add more than you think looks good. It diffuses when it melts into the glass. When I add glass powder to a project I sprinkle down enough to create the look I want – then add that much again. Double what you think. With a bit of practice, you can get pretty good at guessing how different it looks from when first applied to how it looks after fusing.

Loading the Kiln

Place the pieces in the kiln with at least ½ inch space between them. It's tricky picking up stacks 3 tall. Easier if you just pick up stacks of two and place them in the kiln then pick up the third piece to place on top of the double thick piles.

Firing Body & Leg Components

Fire to contour fuse 1400F with a 20 minute hold. This will round off the edges and just slightly spread out the glass. You started with 3 levels of 3 mm glass for a combined thickness of 9 mm. The finished fuse will be about 7 to 8 mm thick with it thickest in the middle and noticeably tapering off on the edges. The original pattern is for a crab 9 inch wide x 6.5 inch long and will end up with one 11 inch wide x 8 inch long. It is VERY IMPORTANT to not overfire the parts or they will be spread out and be too thin to fuse together in the tack fuse assembly.

Firing the Shell

Fire the two shell pieces together as a full fuse.

Assembling the Components

The pieces have rounded off in the fuse firing and don't fit tight against each other but just barely touch. You will have to grind or sand the connecting points to provide a firmer fit with more contact surface. If



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there isn't enough contact between the pieces, they won't properly fuse together. Take care to have the pieces fit firmly against each other as flat as possible.



Component pieces assembled before grinding.

It's important to fit the leg pieces together but not necessary for the contact between the leg pieces and the body because the shell tack fused over the body holds all components together.



Component pieces assembled after grinding.



Closeup of pieces before grinding to fit.



Closeup of pieces after grinding to fit.

Firing the Final Assembly

Assemble the fused BODY, and LEG pieces together in the kiln. Take special care to be sure the leg pieces are pressed against each other so they will firmly fuse together. Set the SHELL on top of the leg & body assembly. Set the EYES in place partly under the SHELL. Fire the assembly to tack fuse.



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Pouring plaster/silica mix into a pie plate.



Mold from pie plate.



Assembly with shell & eyes ready to tack fuse.

Draping the Crab

The fused crab looks nice flat but even better if draped over a mold to raise the body to look like it's walking. You can use a stack of ceramic fiber paper to hold the body elevated and let the legs drop in the drape firing so the body is elevated. Cut the ceramic fiber paper into 7 inch diameter circles piled to at least 1/2 inch tall.

Or, you could do as I did and make a draping mold by filing a pie plate with a mix of 50/50 silica flour/pottery plaster investment mix.



Fused crab set on mold to drape.



Crab fused & draped.



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Crab side view walking.



Crab made with bronze glass.

Firing Schedules

Specific firing schedules are ESSENTIAL to make this project work. It relies on understanding volume control and how glass behaves when fired in a kiln. Close isn't good enough. The leg components are 3 layers and not fired to a full fuse because a full fuse will flatten the glass down to 6 mm inch. If the components are only 6mm thick, there are unlikely to bond together in the tack fuse. If they are a little thicker than 6 mm thick, they will try to expand in the tack fuse firing and as they try to expand will press against each other to firmly fuse together. That's why it is also ESSENTIAL the tack fuse firing be high enough to encourage the glass to spread slightly but not high enough to flatten out the connections.

| Seg | Ramp | Temp | Hold |
|-----|------|------|------|
|-----|------|------|------|

Full Fuse 2 layer

| | | | |
|----|-------------|--------------|----|
| 1. | 400F (200C) | 1000F (515C) | 20 |
| 2. | 800F (425C) | 1460F (795C) | 20 |
| 3. | FULL | 960F (510C) | 60 |
| 4. | 400F (200C) | 300F (150C) | 0 |

Contour Fuse 3 layer

| | | | |
|----|-------------|--------------|----|
| 1. | 300F (150C) | 1000F (515C) | 20 |
| 2. | 800F (425C) | 1400F (760C) | 20 |
| 3. | FULL | 960F (510C) | 60 |
| 4. | 300F (150C) | 300F (150C) | 0 |

Tack Fuse combined assembly

| | | | |
|----|-------------|--------------|----|
| 1. | 200F (95C) | 1000F (515C) | 20 |
| 2. | 800F (425C) | 1360F (735C) | 20 |
| 3. | FULL | 960F (510C) | 60 |
| 4. | 200F (200C) | 300F (150C) | 0 |

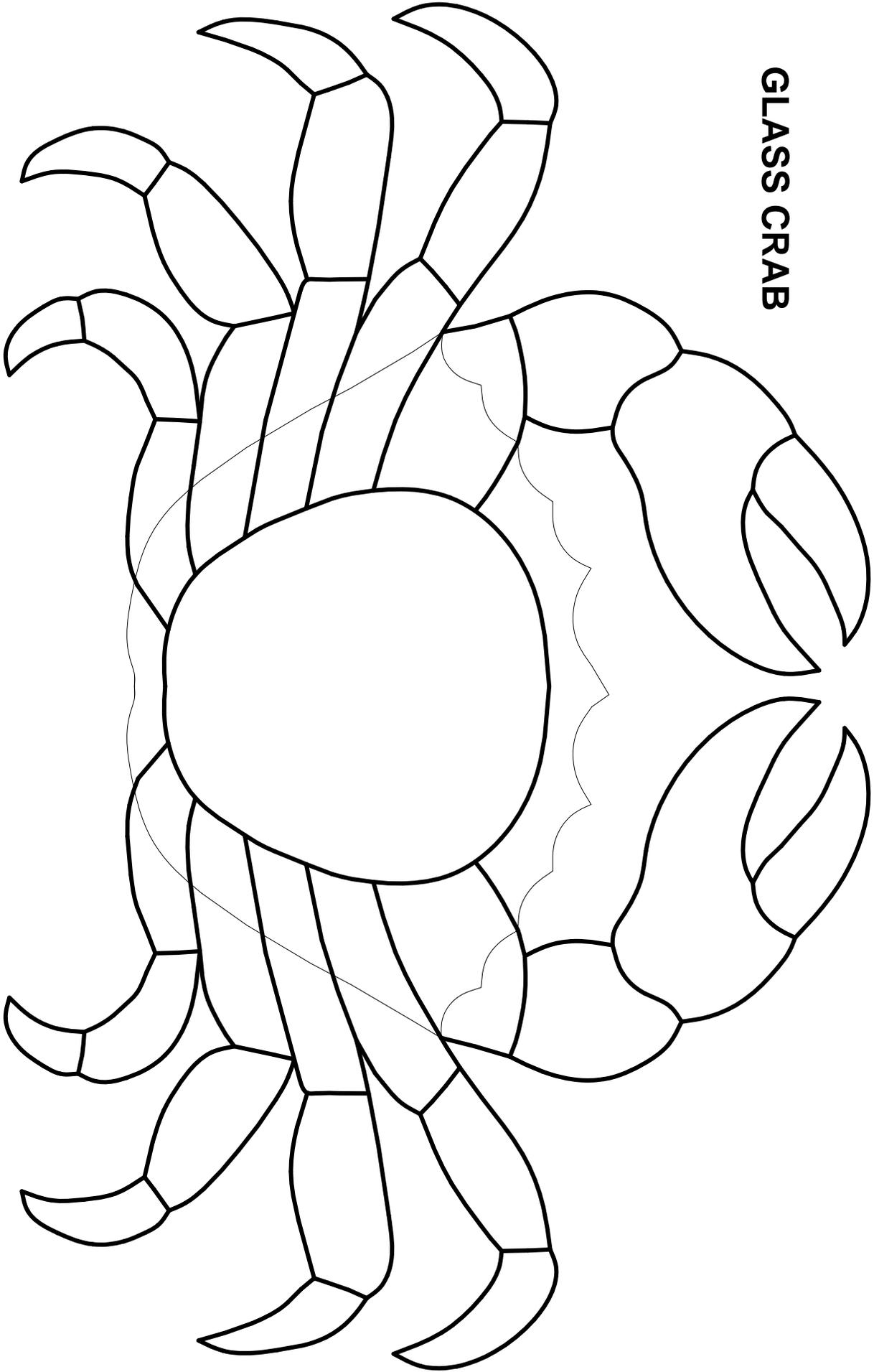
Drape finished fused assembly

| | | | |
|----|-------------|--------------|----|
| 1. | 200F (95C) | 1000F (515C) | 20 |
| 2. | 800F (425C) | 1200F (650C) | 20 |
| 3. | FULL | 960F (510C) | 60 |
| 4. | 200F (95C) | 300F (150C) | 0 |

These schedules apply for COE 96 glass.

For COE 90 glass, use the same schedules but increase the top temperature in segment 2 by 20F

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GLASS CRAB MAIN SHELL

