

# Glass Fossils (art + history; art + science)

One means by which fossils are formed is known as “carbonization.” In this process, a plant or animal is buried beneath layers of sediment. Over time, compression and heat turn the sediment to rock and most of the elements — such as hydrogen, oxygen and nitrogen — are removed from the specimen, leaving carbon remnants behind. The carbon forms an impression in rock that represents the object in great detail. Great examples of ancient fish, insects, leaves and butterflies are found in the Florissant Fossil Beds in Colorado.

Fused glass can demonstrate this process in just a few hours. Sandwich plant materials between layers of glass and fire rapidly in a glass kiln. The plant burns away and the carbon leaves a silvery-white outline behind.

NOTE: results may vary with organic materials and kiln used. A test firing is recommended.

## Grade Levels 5-12

*Note: instructions and materials based on a class of 25 students. Adjust as needed.*

## Preparation

1. Gather samples of small leaves and flowers. The delicate, thin leaves and petals of many flowers and ferns do not leave a strong impression. Evergreens work very well. Look for substance, as well as interesting edges, veining and shapes. Thick samples should be pressed first. When the clear glass is placed on top, the sample should not raise the glass more than 1/8", or air pockets will form.
2. Precut clear and colored glass into pieces approximately 2" x 3". Each fossil will need a background glass and a clear glass piece on top. Darker colors will provide the most dramatic



*Everygreen leaf on Clear glass, mounted in optional frame*



*Ash leaf on Kelly Green glass shown with optional Glass Stringers*



*"Baby's Breath" on Aqua glass, shown with optional wire wrap*

## Materials



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Amaco® COE 90 Fusing Glass, 6" x 6" sheets, clear (34100-1606) and colors (34100-). Cut to 2" x 3" pieces for 6 per sheet, need one clear and one color for each fused piece

Amaco® GSF 045 Glass Kiln (30179-1001)

Amaco® Kiln Wash (32922-0001)

Organic material for carbonization

### Optional Materials

Jewelry Wire (60688-2026)

Amaco® Glass Stringers (34103-)

Amaco® Glass Noodles (34101-)

Amaco® Diamond Pad (33596-1038), for polishing edges

Blick Gallery Wood Frame (17083-2001), Black, 6" x 6", for display

Crescent Matboard (13007-2453), assorted colors for mounting

Duco Cement (23823-1003) for mounting

## Preparation , continued

contrast. It's not necessary for the two glass pieces to line up exactly and edges do not need to be perfectly squared or straight. Irregular edges will fuse into interesting shaped pieces.

4. Apply three even coats of Amaco Kiln Wash to kiln shelf. Allow each coat to dry.

## Process

1. Arrange the plant samples on the piece of colored glass and cover with the clear glass. Samples may overlap one another. Parts of the plant that hang off the edges will burn away, but should be trimmed if they are long enough to interfere with other pieces.
2. Arrange in kiln, allowing 1/4" space between the sides of pieces and at least 4" above pieces for airflow.
3. Program glass kiln to heat quickly to 800°F, and hold that temperature for 30 minutes. This will allow organic matter to burn off and give air bubbles a chance to escape. Continue to heat to 1400°F and hold for 12-15 minutes. Cool to 900°F and hold for 20 minutes, then allow normal cool.
5. Carefully remove pieces from kiln when completely cool.
4. Most of the glass edges will have fused into safe, rounded shapes, however pieces should be handled with care in case a sharp edge remains. Use the Amaco Diamond Pad to gently file away any sharpness. If kiln wash adheres to the back, remove with warm water and a plastic scrubber.



*Flower buds on black glass, shown with optional wire wrap and jewelry cord*

## National Standards

Content Standard #4 – Understanding the visual arts in relation to history and cultures

### 5-8

Students analyze, describe, and demonstrate how factors of time and place (such as climate, resources, ideas, and technology) influence visual characteristics that give meaning and value to a work of art

### 9-12

Students describe the function and explore the meaning of specific art objects within varied cultures, times, and places

Content Standard #6 – Making connections between visual arts and other disciplines

### 5-8

Students describe ways in which the principles and subject matter of other disciplines taught in the school are interrelated with the visual arts

### 9-12

Students compare characteristics of visual arts within a particular historical period or style with ideas, issues, or themes in the humanities or sciences



*Juniper on Cobalt Blue glass*

## Options

1. Wire-wrap small fossils to form pendants and brooches.
2. Mount and display in frames as one would a fossil collection.