

Using a hands-on chemical glass etching lab activity verses a power point presentation:

Topics you should consider teaching in lab rather than in class

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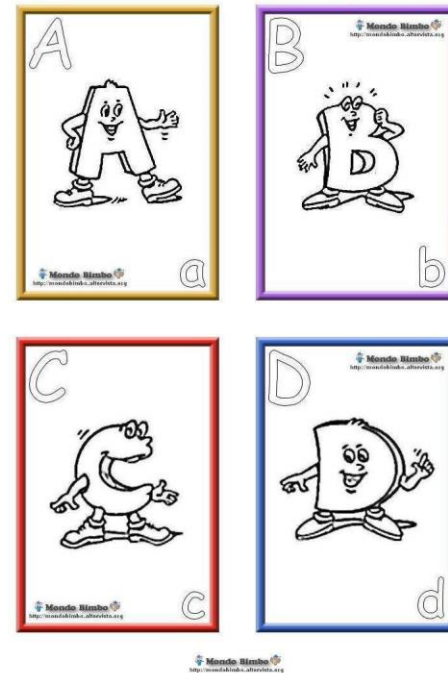
Pre-Test: Write a sentence or 3.

- ▶ Does glass etching involve a chemical or a physical change? Explain why (if you can).

Multiple Choice Cards or have students vote with their feet:

- ▶ Does glass etching involve a chemical or a physical change?
- ▶ A. chemical change
- ▶ B. physical change
- ▶ C. both
- ▶ D. What is glass etching?

Alfabeto in Flashcard dalla A alla D



Glass Etching: Chemical vs Physical

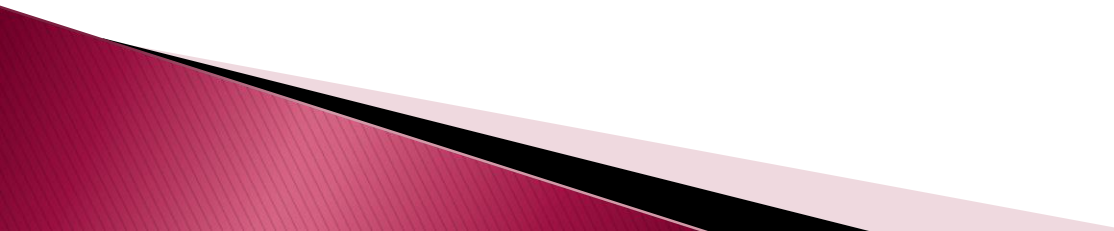
- ▶ Hands-on: etching cream activity
- ▶ acid etching or glass etching cream
- ▶ **Choose a piece of glass and stencil.**
- ▶ Clean glass.
- ▶ Carefully adhere stencil to glass
- ▶ Completely frame stencil with masking tape.
- ▶ <http://viewpure.com/fKBWWoF2hiM?start=0&end=0>
- ▶ 1:03

Ingredients in Armour Etching Cream...

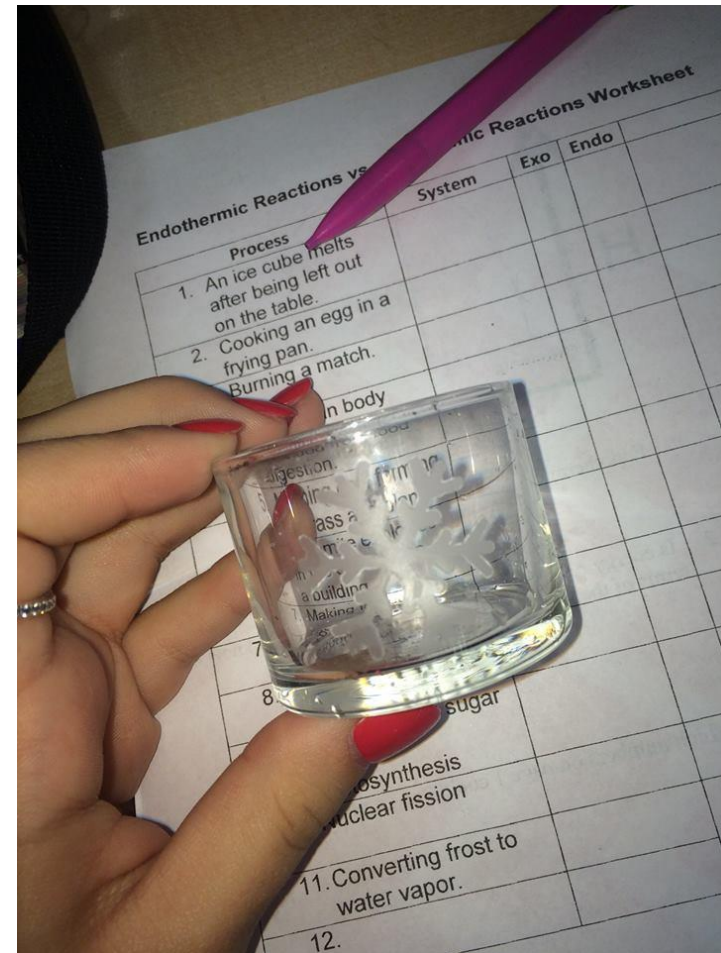
- barium sulfate = BaSO_4
- sulfuric acid = H_2SO_4
- sodium bifluoride = NaHF_2
- ammonium bifluoride = NH_4HF_2

When the paste reacts with the glass, it makes a silicon fluoride compound which is rinsed away. The etching compound is dangerous, So all safety precautions need to be followed and could be abandon For sand blasting techniques which are safer although much messier.

Etching Glass using etching cream.

- ▶ **Wear goggles and gloves.** (aprons optional)
 - ▶ Using paint brush, carefully apply etching cream to stencil cut out areas.
 - ▶ **Wait two minutes.** Then brush off excess etching cream.
 - ▶ Use running warm water and brush to remove the rest of the cream and dab dry.
 - ▶ Dispose of masking tape.
 - ▶ **Return reusable stencil to Prof. Chapman.**
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Pictures of my students' work:



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Glass Etching Video Clips:

- ▶ Abrasive or sand blasting: 1:33
- ▶ <http://viewpure.com/5h6NBRSRxok?start=0&end=0>
- ▶ Sand blasting Glass Ornament: 2:19
- ▶ <http://viewpure.com/eVFji6cQO5Q?start=0&end=0>
- ▶ Laser etching: 1:38
- ▶ <http://viewpure.com/tuaZPAUU5w4?start=0&end=0>

Post-Test: Write a sentence or 3.

- ▶ Does glass etching involve a chemical or a physical change? Explain why.

- ▶ Follow-Up Question: What classroom lesson should you consider teaching next year with a hands-on activity or lab rather than in class?

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<http://finditfunditflorida.com/collier/fundedgrant/24843/>

Thank you to my principal, Mr. Jon Bremseth
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