Shaving cream is a product that is made from petroleum. What type of marbling pattern can you create using shaving cream and food coloring? This activity can be used to introduce chemistry concepts along with art and history. Have fun making marbling creations!

The history of shaving dates back to before 3000 BC. Soldiers were encouraged to shave their heads as a defensive measure to keep enemies from grabbing their hair during hand-to-hand combat. As more and more men in societies began shaving heads and facial hair, those men of unshaven societies became known as ‘barbarians,’ meaning the ‘unbarbered.’ Women began shaving their legs and underarms much later.
Petroleum By-products

For centuries, these societies used soap to facilitate hair removal. Although men and women have been shaving for centuries, it wasn’t until the 1930s that the first cans of aerosol shaving creams were sold. Originally, the shaving cream canisters contained chlorofluorocarbons (CFCs), but this substance was thought to be detrimental to the Earth’s ozone layer, so it was banned in the 1970s. Gaseous mixtures of pentane, propane, butane, and isobutene, which are hydrocarbons that are derived from petroleum products during oil and natural gas processing, are now used.

Marbling

Food coloring dropped onto shaving cream can mimic the Japanese version of paper marbling called sumi nagashi. Paper marbling has been popular for centuries. The Japanese dropped carbon-based inks onto water, blew across the water to produce swirls, and lifted the ink with rice paper. Shaving cream can be used to produce those same swirls on paper when food coloring is dropped into the shaving cream; the color disappears into the lather at the point of contact, which lowers the surface tension of the food coloring. Shaving cream contains soap, which is a wetting agent. When a wetting agent dissolves in water, the surface tension is lowered. However, diffusion of the drops of food coloring in the shaving cream is not readily observed. Instead, the spreading and dissolving of soap on the surface of the added water drop is observed, and this causes the color to disappear at the water contact site. If the shaving cream and drops of food coloring sit undisturbed for 20-30 minutes, the diffusion of the food color into the lather will be clearly observed.

Sources

http://www.madehow.com/Volume-1/Shaving-Cream.html
http://en.wikipedia.org/wiki/Shave_cream

Getting Ready

Assemble the materials needed. Show samples of marbled paper.

Procedure

1. Spray the foam (the size of your fist) onto the paper plate.
2. Use a Popsicle stick to spread and flatten the foam.
3. Put a drop or two of food coloring to the side of the cream and transfer it to the cream using a toothpick. (You may use more than one color, but keep them separate at first.)
4. Use a toothpick to drag the food coloring through the foam to create patterns.
5. Press the cardstock or index paper over the foam.
6. Scrape off the excess foam from the paper.
7. Allow to dry.

Discussion

1. Describe the patterns you made.
2. What caused or made those patterns and trends?

Extensions

1. Use the activity to create various types of greeting cards: Christmas, Valentine, Easter, etc.
2. Science Night activity
3. Use in math for symmetry, patterns, and English Language Class for decorating stories students are studying.