

Silver Mirroring Class (2 Versions)

PowerPoint and Procedures Prepared by Yieu Chyan

Version 1: Science + Mirroring

Tollen's Reagent is used to coat the interior of a glass ornament with a layer of silver. The Science heavy version of the class will include a 40 min interactive lecture that uses the mirror making process to introduce redox reactions, isomers, reducing sugars, equilibria, thin film growth, and other chemistry/materials science topics in an interactive lecture format. Then a hands on session where participants will measure out reagents using pipettes, graduated cylinders, beakers, and other appropriate glassware. Each participant will combine the chemicals, seal the mouth of the glass vessel with parafilm, and then plate their glass ornaments. When the desired coating is obtained, participants will empty spent reagent into a beaker containing water and rinse the ornaments with water 3 times. Decorative stickers can be applied to provided flat ornaments (Each Participant will make 1 ornament). Waste will be rendered safe by treating spent and excess solution with hydrochloric acid until the solution reaches pH 2, filtering out the AgCl precipitate, then neutralizing the filtrate with sodium bicarbonate before disposal.

Version 2: Mirroring Only (Science Lite)

For those who just need to make ornaments, a "Science Lite" version of the class will be offered where a brief 5 minute description of the chemical reaction will be provided followed by a working session to silver ornaments. Reagents will be pre-aliquoted in the interest of time and the instructor may perform the mixing of chemicals and sealing of the ornaments before handing the participant to shake until the desired sheen is obtained. Given that people may desire to make different numbers of ornaments, there will be a base fee to cover various expenses that includes the silvering of 1 ornament. As of 2024, additional simple round ornaments provided by Science can be silvered for ~\$3 and ornaments with a flat face suitable for applying vinyl stickers to can be silvered for ~\$4. The fee for silvering additional self-provided ornament that (such as ones made in a Glassworks class) will be \$2.

