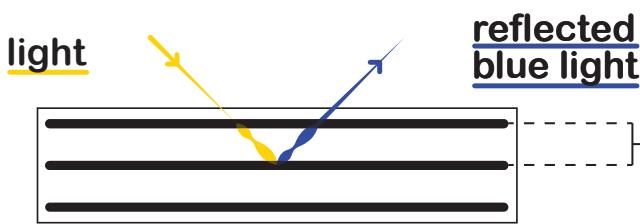


Thermochromism

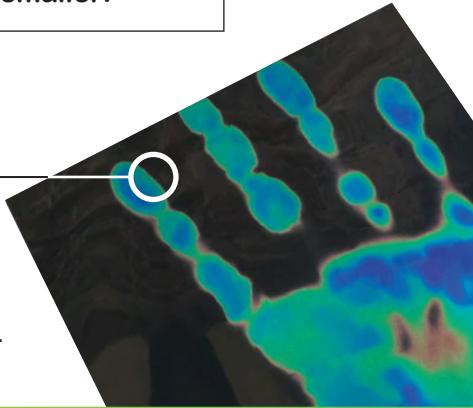
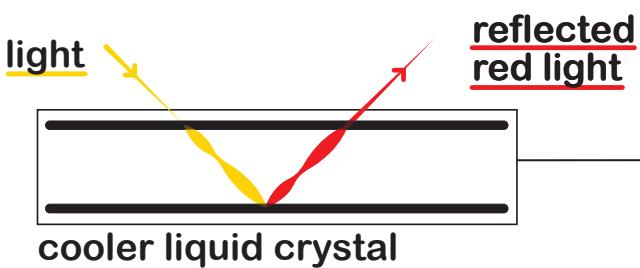


1 Liquid Crystal



The liquid crystal has a smaller **chiral pitch** at higher temperatures and, thus, the reflected light's wavelength is smaller!

The **chiral pitch** is the distance between the aligned liquid crystal layers!



*Thermochromic liquid crystal (TLC) is more expensive, has less color options, but is much more sensitive to heat!

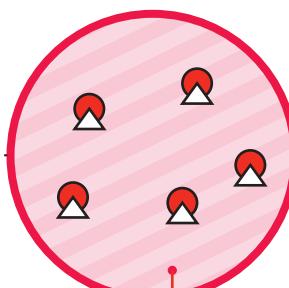
2 Leuco Dyes

Most leuco dyes consist of three components:

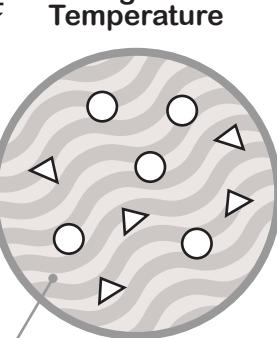
1. A phase changing solvent
2. An acidic developer
3. The leuco dye

These components are contained in tiny microcapsules that 'activate' and turn colorless as specific temperatures. The activation temperature is generally determined by the melting point of the solvent.

Lower Temperature \longleftrightarrow Higher Temperature



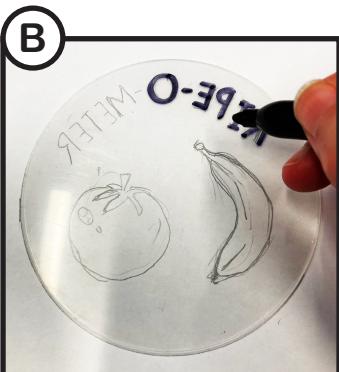
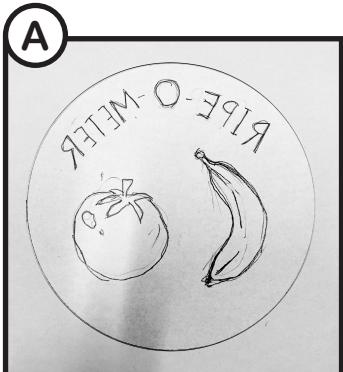
solvent in liquid state



*Leuco dyes are used more in commercial products (like heat sensitive mugs) and can be found in many different color combinations!

Making a Thermochromic Coaster

1 Planning

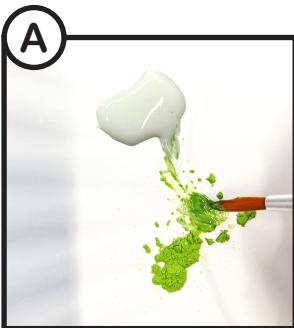


A. Sketch your design on paper. Remember, you'll be painting on the back of your plastic piece, so everything will be flipped—don't forget to write backward!

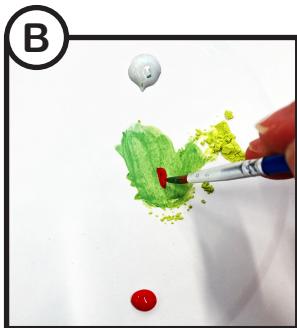
B. Place your plastic piece on top of your sketch and trace it with black sharpie. Paint may smudge a little when you adhere your plastic to your cork—sharpie lines will remain clear.

2 Painting

OPTION A:
Mix **ONE SMALL SCOOP** of the thermochromic pigment with a little bit of mod podge and paint it onto the plastic.



OPTION B:
Mix **ONE SMALL SCOOP** of the thermochromic pigment with a little bit of acrylic paint and paint it on to the plastic.



*White acrylic and mod podge should be your base, but you can mix in small amounts of other colors as well. For example, the tomato is red acrylic mixed into the green to yellow. Remember, you only need a little of everything!

3 Finishing

(Optional) Finish off your coaster with acrylic color—these won't change, but can complete your design.

Peel the backing of the cork and adhere your plastic **paint-side-down** to your cork.

COLD



HOT

