

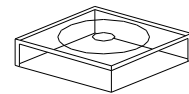
AMAZING POLARIZATION EXPERIMENTS

Polarized light can create some amazing effects, and has some interesting uses.

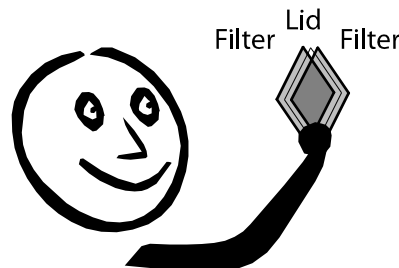
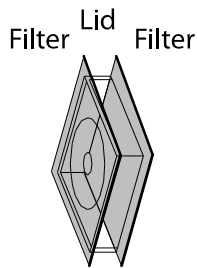
STRESS TEST

Plastic things are often made by squirting hot melted plastic into a mold. Sometimes the plastic cools unevenly, creating stresses. With clear objects, these stresses can actually be seen through polarizing filters. Where the plastic cooled evenly it will look normal. Where the plastic is stressed, well . . . see for yourself.

WHAT YOU NEED: Two polarizing filters, the lid to your clear plastic box, and your plastic magnifying lens.



WHAT TO DO: Sandwich the lid of your clear plastic box between the two polarizing filters. Look through your polarized sandwich toward a bright window or a light, and turn one of the filters.



When you look through the filters, what clues show that the plastic lid might be stressed?

Also inspect your plastic magnifying lens this way. The fewer stress bands you see, the more perfect your lens.

Try testing other clear plastic objects around your house. For example, clear tape dispensers work well.

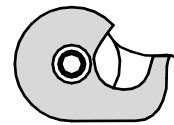
Do stress colors look more like rainbow colors or soap bubble colors?

COLOR CANCELLATIONS

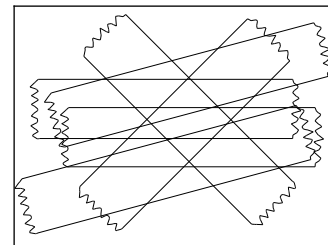
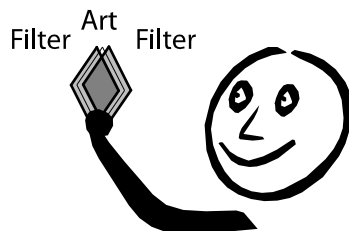
*STRESSED PLASTICS TAKE WHITE POLARIZED LIGHT AND MAKE SOME OF THE COLORS **CANCEL OUT**. THE COLORS YOU SEE ARE THE ONES THAT ARE LEFT. THIS COLOR CANCELLATION IS SIMILAR TO WHAT MAKES THE COLORS ON A SOAP BUBBLE OR AN OILY PUDDLE.*

POLARIZED MODERN ART

WHAT YOU NEED: Two polarizing filters, a roll of cellophane tape, and a sheet of transparency film. You will also need to provide scissors.



WHAT TO DO: Cut a piece of transparency film that is about the same size as your filters. Now overlap and crisscross several pieces of tape onto the transparency, maybe like this: (Fingerprints won't really matter.)



- Sandwich your tape art between the two filters. Look through your polarized sandwich toward a bright window or a light, and observe.
- Now turn one of the filters.
- If you like this, try another one! You have plenty of cellophane tape and transparency film to experiment with. Be creative and make your own art work! You might cut the tape to make a tree and waterfall, or a rocket blasting off to the moon, spell your name, or create a changing picture!

