### Materials
- Red, blue, and purple permanent markers
- Assorted colored pens and pencils
- Yellow highlighter
- Index cards
- 2 Clear plastic sandwich bags
- Scrap paper or newspaper

### Procedure
- Cover your work surface with the scratch paper or newspaper.
- Turn one of the plastic bags inside out and use the purple permanent marker to color one side of the inside of the bag. Wait 10-15 seconds for the ink to dry and then turn it right side out.
- Use the blue permanent marker to color the outside of the bag on the same side you colored purple. One side of the bag should be clear and the other should be purple on the inside and blue on the outside.
- Color one side of the remaining plastic bag with the red permanent marker.
- Use the colored pens and pencils to write messages on the index cards. Place the index cards in each bag and observe what happens to the messages.
- Use the yellow highlighter to write or draw a secret message and then scribble on top of the message with a blue pen or pencil. Place the index card in the blue and purple bag and observe what happens to the messages.

### Why?
The red bag acts as a red filter, which absorbs red light and reflects blue, green, and purple light. The messages written in red are absorbed when placed in the red bag, so they are invisible. The blue, green, and purple messages are reflected, so they are visible. The blue/purple bag acts as a blue/purple filter, which absorbs blue and purple light and reflects red, orange, and yellow light. The messages written in blue and green are absorbed when placed in the blue/purple bag, so they are invisible. The messages written in red, yellow, and orange are reflected, so they are visible.

To learn more about color, check out the Pink Palace Museum's *Light and Color Program*. 

---

**Results**
Blue, green, and dark purple messages are visible when placed in the red bag but disappear in the blue/purple colored bag. Red, orange, and yellow messages are visible when placed in the blue/purple bag but disappear in the red bag. The message written in yellow and covered in blue can be read when placed in the blue/purple bag.