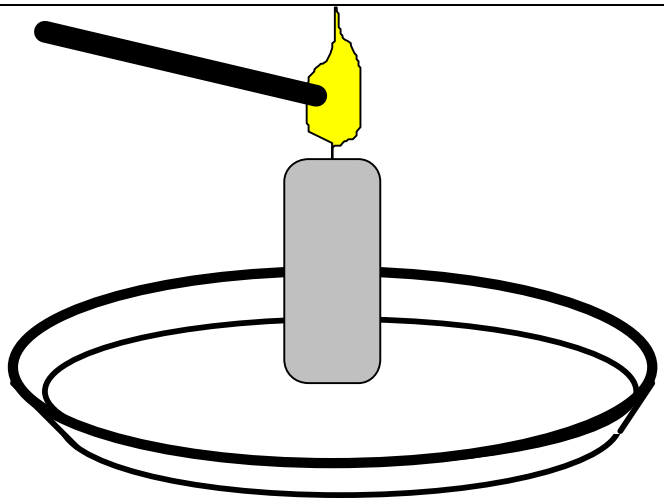
Flame Tests

Just as a fingerprint is unique to each person, the color of light emitted after excitation of an element is different for each element. When a metallic element's electrons absorb energy, by heating for example, the electron is said to become "excited". When an excited electron moves back to its "ground state" (non-excited), energy is emitted in the form of light.

Materials:
Toothpicks or wood splints
Paper cups
Large candle
Metal pie pan
Distilled water
Pliers or tongs

Solutions made from metal compounds:
Calcium (calcium chloride)
Copper (copper chloride)
Potassium (potassium chloride)
Sodium (sodium chloride)



Procedure:
1. Dissolve a small amount of each metal compound in distilled water. (The concentration is not important) Use a separate paper cup for each metal solution. Label the cups with the names of the metal solutions. Fill and label one cup with plain distilled water to serve as a control.
2. Soak some wood splints or toothpicks in each solution cup.
3. Place a candle securely in the metal pie pan, and pour some water in the pan. Light the candle, remembering flame safety.
4. Use the tongs or pliers to hold a toothpick so the soaked end is in the candle's flame. Observe the color, and record data in the table below.

Data Table			
Metal	**Color**	**Metal**	**Color**
Calcium		Potassium	
Copper		Sodium	