

Love Potion Lab – Teacher Guide

Overview: Set up 3–5 Valentine-themed chemistry stations that demonstrate core science concepts. Each potion uses safe, familiar ingredients and offers hands-on engagement.

Grade Range: 3–10

Recommended Format: Rotating stations or full-class demos. Each activity takes about 10–15 minutes.

Preparation Tips:

- Label each station clearly with a recipe card and instructions.
- Use disposable cups or test tubes for quick cleanup.
- Prepare red cabbage indicator ahead of time (boil, cool, and strain).
- Use droppers, pipettes, or spoons to limit mess.
- Place protective mats or trays under each experiment.

Safety Notes:

Supervise use of vinegar, UV lights, and dry erase markers. Avoid ingestion and wear goggles if available.

Potion #1: Color-Changing Love Elixir

Science Concept: pH indicators

Materials per group:

- Red cabbage juice or phenolphthalein
- Baking soda solution
- Vinegar or lemon juice
- Clear cups or beakers
- Droppers or spoons

Explanation: pH affects indicator molecules, causing visible color shifts. Great for introducing acids, bases, and pH.



Potion #2: Bubbling Hearts Potion

Science Concept: Acid-base reaction and gas evolution

Materials per group:

- Baking soda
- Vinegar or citric acid
- Red/pink food coloring
- Small containers or molds
- Droppers or pipettes

Explanation: The acid reacts with the baking soda to release carbon dioxide, causing fizz and bubbles.

Potion #3: Shimmering Solubility Sparkle

Science Concept: Density and immiscibility

Materials per group:

- Water
- Vegetable oil
- Pink or red glitter
- Clear bottles
- Optional: food coloring

Explanation: Water and oil separate due to polarity. Glitter floats or sinks based on density.



Potion #4: Glowing Love Tonic

Science Concept: Fluorescence

Materials per group:

- Tonic water
- Clear cups
- UV/blacklight
- Optional: glow decorations

Explanation: Quinine in tonic water fluoresces under UV light. Introduces concept of fluorescence and UV radiation.

Potion #5: Floating Heart Illusion

Science Concept: Surface tension and solubility

Materials per group:

- Dry erase marker
- Glass or ceramic plate
- Cup of water
- Paper towels

Explanation: Marker ink is non-polar and lifts off with water. Demonstrates surface tension and cohesion.

Optional Extensions:

- Have students graph reaction intensity or pH color changes.
- Creative writing prompt: A magical potion mix-up story.
- Use colored lights or beakers to enhance station themes.
- Provide vocabulary matching or reflection sheets.