

# DPR

Name: \_\_\_\_\_

Partner's Name(s): \_\_\_\_\_

Lab Date: \_\_\_\_\_ Lab Instructor's Name: \_\_\_\_\_

## AN INTRODUCTION TO THE ELEMENTARY CHEMISTRY LAB LAB NOTEBOOK PAGES

All procedure(s) and data/observations must be recorded in the lab notebook in pen with permanent, waterproof ink (black or blue). Pencils, markers, highlighters, and correction fluid (white-out) are not permitted. No information can be recorded elsewhere and transferred after leaving the lab. Lab notebooks can be digital or paper; you may write directly on the lab notebook pages in your lab manual or download a digital copy onto your electronic device and then write in it. Refer to the Guide for Success in the General Chemistry Laboratory section in the front of this lab manual for more detailed instructions.

- ⦿ **Before Lab:** Make sure to complete the Procedure section in your lab notebook pages.
- ⦿ **After Lab:** Upload your notebook pages to the appropriate Carmen assignment within 48 hours after the start time of your in-person lab session. If you used the notebook pages in your paper copy of your lab manual, you should scan or take photos of the pages. Do not remove them from your lab manual. Refer to the DPR Notebook upload assignment in Carmen for more detailed instructions.

## PROCEDURE CITATION \_\_\_\_\_

*Chemistry 1110: Elementary Chemistry Laboratory Manual*, Fall 2025–Summer 2026.; Weaver, T. A., Opoku-Agyeman, B., Fontes N. Da Silva, C., Welch, A. N., Rundell, S. R., Stern, J. E., Wroblewski, R. A., Walter, C., van Helmond, A. Eds.; Van-Griner Learning: Cincinnati, OH; pp. 1–4.

## PROCEDURE

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Below are examples of a Procedure Summary and a Procedure Outline (step-by-step) for this experiment. For future experiments, you may use either format in your lab notebook—completing both is not required.

Today, we will work together as a class to complete the procedure summary and fill in Step 9 in the provided procedure outline. Use these as references when preparing your lab notebook for future experiments.

### PROCEDURE SUMMARY

#### What should I do if I make an error in my lab notebook?

Simply cross out the mistake with a single or double line (strikethrough), or a simple X, and then continue writing. Do not scribble anything out, use non-straight lines, white-out, an eraser, or the undo button (for digital notebooks). You should be able to see what was crossed out. Step 2c of the procedure outline includes an example of a single strikethrough.

### PROCEDURE OUTLINE

1. a. Tare a new weigh boat on analytical balance.  
b. Use provided scoop to add 0.10 g sodium polyacrylate to tared weigh boat.  
c. Record exact mass to 0.0001 g.
2. a. Clean and dry a 250-mL beaker and label "Trial 1."  
b. Transfer weighed sodium polyacrylate to 250-mL beaker.  
c. Record observations of ~~solution~~ solid.

3. a. Measure out approximately 50 mL of distilled water in a 100-mL graduated cylinder.  
b. Record exact volume to 0.1 mL.  
c. Pour water into beaker containing sodium polyacrylate.  
d. Record observations on what happens.
4. a. After 30 s, stir with glass stir rod and record observations on texture.  
b. Determine temperature with glass thermometer and record to 0.1 °C.
5. a. Clean, dry, and label a 50-mL beaker.  
b. Obtain ~15 mL of saturated sodium chloride in labeled beaker.  
c. Record observations of sodium chloride solution.
6. a. Use volumetric pipet to add 10.00 mL saturated sodium chloride to beaker containing sodium.  
b. Record exact volume of solution transferred in notebook.  
c. Observe and record observations of mixture.
7. a. Use glass thermometer to determine temperature of mixture.  
b. Record temperature.  
c. Set Trial 1 beaker aside.
8. a. Repeat Steps 1-4; use a 250-mL beaker labeled "Trial 2."
- 9.
  
10. a. Add calcium chloride solid to Trial 2 beaker.  
b. Record observations of what happens.  
c. Use glass thermometer to measure temperature of mixture.  
d. Record temperature to nearest 0.1 °C.

## CLEAN UP AND WASTE DISPOSAL

The waste from this experiment **should not** be poured down the drain. All waste should be added to the class Chemical Waste beaker. Be sure to fill in the Chemical Waste Disposal Form. Dispose of used weigh boats in the trash. Clean and return all items to the appropriate drawer. After cleaning up, wipe down your work area with 70% ethanol spray and a paper towel. Wash your hands thoroughly after completing this experiment.

## DATA AND OBSERVATIONS

Make sure all observations are accurate, clearly written, detailed, and completely describe the specific situation. Observations can include colors, textures, and appearance. When recording numerical data, be sure to record all significant figures: all digits displayed on a balance, the appropriate precision of any glassware used, etc., and units.

## AN INTRODUCTION TO THE ELEMENTARY CHEMISTRY LAB

### TRIAL 1

Mass of sodium polyacrylate used (g) \_\_\_\_\_

#### OBSERVATIONS OF SODIUM POLYACRYLATE SOLID

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Volume of distilled water used (mL) \_\_\_\_\_

#### OBSERVATIONS OF SODIUM POLYACRYLATE + WATER MIXTURE IN BEAKER

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Temperature of sodium polyacrylate + water mixture in beaker (°C) \_\_\_\_\_

Volume of saturated NaCl used (mL) \_\_\_\_\_

#### OBSERVATIONS OF SATURATED NaCl SOLUTION

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Temperature of mixture in beaker after adding saturated NaCl (°C) \_\_\_\_\_

OBSERVATIONS OF MIXTURE IN BEAKER AFTER ADDING SATURATED NaCl SOLUTION

## TRIAL 2

Mass of sodium polyacrylate used (g) \_\_\_\_\_

OBSERVATIONS OF SODIUM POLYACRYLATE SOLID

Volume of distilled water used (mL) \_\_\_\_\_

OBSERVATIONS OF SODIUM POLYACRYLATE + WATER MIXTURE IN BEAKER

Temperature of sodium polyacrylate + water mixture in beaker (°C) \_\_\_\_\_

Mass of solid CaCl<sub>2</sub> used (g) \_\_\_\_\_

OBSERVATIONS OF CaCl<sub>2</sub> SOLID

Temperature of mixture in beaker after adding  $\text{CaCl}_2$  ( $^{\circ}\text{C}$ ) \_\_\_\_\_

OBSERVATIONS OF MIXTURE IN BEAKER AFTER ADDING  $\text{CaCl}_2$  SOLID

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## IN-LAB QUESTIONS

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*Answer the following questions in your lab notebook or lab manual. They will be graded for completion (you will receive full points as long as all are answered and checked by your Lab Instructor before you leave).*

1. Which section(s) of the lab notebook are you required to prepare **before** arriving to lab?
  
  
  
  
  
  
  
  
  
  
2. While writing in your notebook, you notice a mistake in the procedure you prepared. What should you do to correct this error?

**Hint:** An error was made in Step 2 of the step-by-step procedure provided for this experiment. How was it corrected?

3.
  - a. When recording data, what constitutes a properly labeled data element?
  
  
  
  
  
  
  
  
  
  
  - b. If your data is quantitative (numerical), what should you consider when recording a value?

- c. If your data is qualitative (non-numerical), what kind of descriptors should you use?
4. Diya made a mistake when recording her *mass of sodium polyacrylate used (g)*. She used white-out to erase her mistake from her notebook. Is this acceptable? Consider why scientists keep a lab notebook.
5. Gemma noticed while completing her post-lab at home that she recorded the *mass of solid  $\text{CaCl}_2$  used (g)* as 9.065 g. She is very confident that the mass was actually 9.1065 g. Which mass should she enter into the post-lab? Why?
6. Bartholomew did not complete Part E of Experiment ABC, but his friend Ernest did and his data looks very similar to Bartholomew's. What should Bartholomew do to obtain Part E data for his post-lab? Should he copy Ernest's data and present it as his own?
7. Your lab notebook must be submitted to the correct assignment on Carmen within 48 hours of lab. What file types are accepted? What would the file name be for the Experiment XYZ notebook?