Precipitation Reactions

SCH4C | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

Can solubility rules predict which pairs of aqueous ionic solutions form a precipitate?

Learning goal: use the virtual model to gather evidence, explain precipitation reactions and communicate a supported conclusion.

Materials: WorksheetGalaxy virtual laboratory, this assignment, calculator or spreadsheet if needed. Virtual observations only; do not recreate hazardous procedures or perform physical fitness tests without teacher approval.

1. Define two relevant scientific terms from the Background Information tab. (K/U)

2. Write a prediction or hypothesis with a scientific reason. (K/U, T/I)

3. Identify the variable or feature compared, the measured outcome and constants or consistent observation criteria. (T/I)

Precipitation Reactions

SCH4C | Student laboratory assignment | 2 of 4

Perform the virtual laboratory

Open the corresponding virtual lab and read Background Information. Follow the investigation instructions below. Record authentic simulated results; do not invent data.

- Read the background and write a prediction for each mixture before running it.
- Investigate at least six different mixtures , including two that do not form precipitates.
- For each trial, record the reactants, predicted outcome, observed outcome, and any solid colour.
- Choose three precipitating reactions and identify the solid product and spectator ions.
- Write a balanced molecular equation and net ionic equation for two precipitating reactions.
- Complete the lab report, including limitations and safe disposal practices.

Record each completed observation using the simulator’s record control when available. Use Data & Graphs to review results. Export CSV if available; attach additional rows or screenshots when needed.

Record the exact settings and any changes to the method.

Precipitation Reactions

SCH4C | Student laboratory assignment | 3 of 4

Observations & results

Enter the actual results. Keep trial IDs consistent between continued tables. Attach the full exported data or extra sheets when the procedure requires more rows. Include units as displayed.

Data table 1

Trial / item	Solution A	Solution B	Prediction	Observation	Solid / colour

Data table 1 — continued (2)

Trial / item	Correct?

Qualitative observations / sample calculation (show units where applicable)

Precipitation Reactions

SCH4C | Student laboratory assignment | 4 of 4

Analysis, conclusion & assessment

4. Present a labelled graph of a measured relationship, or an annotated diagram / comparison chart for qualitative investigations. Attach it separately. Explain the pattern using recorded evidence. (C, T/I)

5. Analysis: Explain your observations using solubility rules (K/U, A)

6. Compare two contrasting observations from your investigation of Precipitation Reactions. Explain the difference using the background information. (K/U, A)

7. Use a specific recorded result to answer the research question. Explain the scientific reasoning behind it. (K/U, A)

Conclusion and evaluation: answer the research question, revisit the prediction using evidence, identify a model limitation and propose an improvement. (T/I, A)

Submit this assignment plus your completed Lab Report (printed or saved as PDF from the lab) and any supporting data/figures.

K/U: accurate concepts /10	T/I: method, data, reasoning /12	C: clear tables, units, report /8	A: explanation, conclusion, transfer /10

Total: /40