Types of Chemical Reactions

SNC2D | Student laboratory assignment | 1 of 4

Prepare for your investigation

Name: _____ Date: _____ Class: _____

Research question

How can reactants, products, and observations be used to identify reaction types?

Learning goal: use the virtual model to gather evidence, explain types of chemical 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)

Types of Chemical Reactions

SNC2D | 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 hypothesis about how to distinguish reaction families.

• For each of the five reaction types, select the corresponding reaction from the experiment menu.

• Before running each reaction, predict its type and whether a gas, precipitate, colour change, or other effect is expected.

• Run the reaction and inspect the balanced equation and virtual observation.

• Record at least five different reactions; aim to test all seven available examples.

• Use Data & Graphs to review classification accuracy and download a CSV.

• Complete the lab report, including conservation of atoms and limitations of simulated observations.

• Variables: Independent variable: reaction selected. Dependent variables: simulated observations and classification result. Controlled factors: fixed reaction models and virtual apparatus.

• Safety: Never reproduce these reactions outside a supervised laboratory. Some examples involve heat, acids, or hazardous compounds. The simulation is not an instruction for handling chemicals.

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.

Types of Chemical Reactions

SNC2D | 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	Reaction	Prediction	Actual type	Result	Observation

Qualitative observations / sample calculation (show units where applicable)

Types of Chemical Reactions

SNC2D | 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. Compare two contrasting observations from your investigation of Types of Chemical Reactions. Explain the difference using the background information. (K/U, A)

6. 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