STATION SET-UP AND GUIDE

# Materials

|  |  |  |
| --- | --- | --- |
| PPE (Gloves, safety goggles, apron) | Waste disposal containers (one for each station) | Concentrated hydrochloric acid |
| Solid zinc | Solid copper | Solid sulfur |
| Crucibles/heat-safe dishes | Copper (II) carbonate | Solid sodium bicarbonate |
| Evaporating dishes | Magnesium strips | Bunsen burners |
| Disposable pipettes | Potassium iodide solution | Lead (II) nitrate solution |
| Test tube clamps | Wooden splints | Test tubes with stands |
| Spatulas | Tongs |  |

| **Station 1: Single Replacement, Redox** |
| --- |
| Reaction | 2Zn + 2HCl → H2 + 2ZnCl |
| Materials Needed | * Solid zinc
* Concentrated hydrochloric acid
* Test tube and stand (or test tube rack)
* Disposable pipette
* Wooden splint (to test for hydrogen gas)
* Test tube clamp (if heating is involved or for safe handling)
* Waste disposal container
 |

| **Station 2: Decomposition** |
| --- |
| Reaction | CuCO3 → CuO + CO2 |
| Materials Needed | * Copper (II) carbonate
* Bunsen burner
* Test tube + stand
* Test tube clamp (or test tube holder)
* Spatula
* Wooden splint (optional, to test for CO₂ by extinguishing flame)
* Waste disposal container
 |

| **Station 3: Combustion, Synthesis, Redox** |
| --- |
| Reaction | 2Mg + O2 → 2MgO |
| Materials Needed | * Magnesium strip
* Bunsen burner
* Tongs
* Evaporating dish
* Waste disposal container
 |

| **Station 4: Double Replacement, Precipitation** |
| --- |
| Reaction | KI + Pb(NO3)2 → KNO3 + PbI2 (s) |
| Materials Needed | * Potassium iodide solution
* Lead (II) nitrate solution
* Test tubes + stand
* Disposable pipettes
* Waste disposal container
 |

| **Station 5: Synthesis, Redox** |
| --- |
| Reaction | Cu + S → CuS |
| Materials Needed | * Solid copper
* Solid sulfur
* Bunsen burner
* Test tube + stand
* Test tube clamp
* Tongs
* Crucible or heat-safe dish
* Waste disposal container
 |

| **Station 6: Acid-Base** |
| --- |
| Reaction | HCl + NaHCO3 → NaCl + CO2 + H2O |
| Materials Needed | * Concentrated hydrochloric acid
* Solid sodium bicarbonate
* Test tube + stand
* Disposable pipette
* Waste disposal container
 |

 *Adapted from https://www.chemedx.org/system/files/activity/types-chemical-reactions/types-chemical-reactions-student.pdf*