STATION SET-UP AND GUIDE

# Materials

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| 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** | |
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| 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*