**Cut reactions into strips. Provide each group with a complete set.**

2KClO3(s) → 2KCl(s) + 3O2(g)

CH4(g) + 2O2(g) → CO2(g) + 2H2O(g)

MgBr2(aq) + Cl2(g) → MgCl2(aq) + Br2(l)

4Al(s) + 3O2(g) → 2Al2O3(s)

3LiBr(aq) + AlCl3(aq) → AlBr3(s) + 3LiCl(aq)

2NaBr(aq) + F2(g) → NaF(aq) + Br2(l)

Ca(NO3)2(aq) + CuSO4(aq) → CaSO4(s) + Cu(NO3)2

C3H8(g) + 5O2(g) → 3CO2(g) + 4H2O(g)

3CaBr2(aq) + 2Cr(NO3)3(aq) → 3 Ca(NO3)2(aq) + 2CrBr3(s)

Fe(s) + 2CuNO3(aq) → Fe(NO3)2(aq) + 2Cu(s)

N2(g) + 3H2(g) → 2NH3(g)

2H2SO4(aq) → 2H2O(l) + O2(g) + 2SO2(g)

2ZnS(s) + 3O2(g) → 2ZnO(s) + 2SO2(g)

(NH4)3PO4(aq) + 3LiOH(aq) → 3NH4OH(aq) + Li3PO4(s)

P4O10(s) + 6H2O(l) → 4H3PO4(aq)

CaCl2(aq) + Na2CO3(aq) → CaCO3(s) + 2NaCl(aq)

2Al(s) + 6HCl(aq) → 2AlCl3(aq) + 3H2(g)

2C6H6(l) + 15O2(g) → 12CO2(g) + 6H2O(g)

3Pb(NO3)2(aq) + 2Na3PO4(aq) → Pb3(PO4)2(s) + 6NaNO3(aq)

H2CO3(s) → H2O(g) + CO2(g)

2Al(s) + 3Br2(g) → 2AlBr3(s)

3O2(g) + 4Fe(s) → 2Fe2O3(s)

2AlI3(aq) + 3HgCl2(aq) → 2AlCl3(aq) + 3HgI2(s)

2Na(s) + MgF2(aq) → 2NaF(aq) + Mg(s)

2C2H6(g) + 5O2(g) → 4CO2(g) + 6H2O(g)

**See sample student answers to the sorting activity below. The definitions of reactions provided were generated from students who did this activity.**

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| **Type of Reaction:** Synthesis |
| **Definition:** two or more reactants combine to make one product  **Examples:**  4Al(s) + 3O2(g) → 2Al2O3(s)  N2(g) + 3H2(g) → 2NH3(g)  P4O10(s) + 6H2O(l) → 4H3PO4(aq)  2Al(s) + 3Br2(g) → 2AlBr3(s)  3O2(g) + 4Fe(s) → 2Fe2O3(s) |
| **Type of Reaction:** Decomposition |
| **Definition:** one reactant breaks apart to form two or more products  **Examples:**  2KClO3(s) → 2KCl(s) + 3O2(g)  2H2SO4(aq) → 2H2O(l) + O2(g) + 2SO2(g)  H2CO3(s) → H2O(g) + CO2(g) |
| **Type of Reaction:** Single Replacement/Displacement |
| **Definition:** one element switches places with another element  **Examples:**  MgBr2(aq) + Cl2(g) → MgCl2(aq) + Br2(l)  2NaBr(aq) + F2(g) → 2NaF(aq) + Br2(l)  Fe(s) + 2CuNO3(aq) → Fe(NO3)2(aq) + 2Cu(s)  2Al(s) + 6HCl(aq) → 2AlCl3(aq) + 3H2(g)  2Na(s) + MgF2(aq) → 2NaF(aq) + Mg(s) |
| **Type of Reaction:** Double Replacement/Displacement |
| **Definition:** all the ions in the ionic compounds switch places  **Examples:**  3LiBr(aq) + AlCl3(aq) → AlBr3(s) + 3LiCl(aq)  Ca(NO3)2(aq) + CuSO4(aq) → CaSO4(s) + Cu(NO3)2  3CaBr2(aq) + 2Cr(NO3)3(aq) → 3 Ca(NO3)2(aq) + 2CrBr3(s)  (NH4)3PO4(aq) + 3LiOH(aq) → 3NH4OH(aq) + Li3PO4(s)  2AlI3(aq) + 3HgCl2(aq) → 2AlCl3(aq) + 3HgI2(s)  CaCl2(aq) + Na2CO3(aq) → CaCO3(s) + 2NaCl(aq)  3Pb(NO3)2(aq) + 2Na3PO4(aq) → Pb3(PO4)2(s) + 6NaNO3(aq) |
| **Type of Reaction:** Combustion |
| **Definition:** oxygen is a reactant and oxygen is part of all the products  **Examples:**  CH4(g) + 2O2(g) → CO2(g) + 2H2O(g)  C3H8(g) + 5O2(g) → 3CO2(g) + 4H2O(g)  2ZnS(s) + 3O2(g) → 2ZnO(s) + 2SO2(g)  2C6H6(l) + 15O2(g) → 12CO2(g) + 6H2O(g)  2C2H6(g) + 5O2(g) → 4CO2(g) + 6H2O(g) |