

Balancing Chemical Equations (Key)  
Front Side

Please note that several of these equations are already balanced as written. They, of course, are unchanged from the worksheet.

- $2 \text{H}_2 + \text{O}_2 \rightarrow 2 \text{H}_2\text{O}$
- $\text{S}_8 + 12 \text{O}_2 \rightarrow 8 \text{SO}_3$
- $2 \text{HgO} \rightarrow 2 \text{Hg} + \text{O}_2$
- $\text{Zn} + 2 \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
- $2 \text{Na} + 2 \text{H}_2\text{O} \rightarrow 2 \text{NaOH} + \text{H}_2$
- $\text{C}_{10}\text{H}_{16} + 8 \text{Cl}_2 \rightarrow 10 \text{C} + 16 \text{HCl}$
- $4 \text{Si}_2\text{H}_3 + 11 \text{O}_2 \rightarrow 8 \text{SiO}_2 + 6 \text{H}_2\text{O}$
- $4 \text{Fe} + 3 \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3$
- $2 \text{C}_7\text{H}_6\text{O}_2 + 15 \text{O}_2 \rightarrow 14 \text{CO}_2 + 6 \text{H}_2\text{O}$
- $4 \text{FeS}_2 + 11 \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3 + 8 \text{SO}_2$
- $\text{Fe}_2\text{O}_3 + 3 \text{H}_2 \rightarrow 2 \text{Fe} + 3 \text{H}_2\text{O}$
- $2 \text{K} + \text{Br}_2 \rightarrow 2 \text{KBr}$
- $2 \text{C}_2\text{H}_2 + 5 \text{O}_2 \rightarrow 4 \text{CO}_2 + 2 \text{H}_2\text{O}$
- $2 \text{H}_2\text{O}_2 \rightarrow 2 \text{H}_2\text{O} + \text{O}_2$
- $\text{C}_7\text{H}_{16} + 11 \text{O}_2 \rightarrow 7 \text{CO}_2 + 8 \text{H}_2\text{O}$
- $\text{SiO}_2 + 4 \text{HF} \rightarrow \text{SiF}_4 + 2 \text{H}_2\text{O}$
- $2 \text{KClO}_3 \rightarrow 2 \text{KCl} + 3 \text{O}_2$
- $4 \text{KClO}_3 \rightarrow 3 \text{KClO}_4 + \text{KCl}$
- $\text{P}_4\text{O}_{10} + 6 \text{H}_2\text{O} \rightarrow 4 \text{H}_3\text{PO}_4$
- $4 \text{Sb} + 3 \text{O}_2 \rightarrow \text{Sb}_4\text{O}_6$
- $\text{C}_3\text{H}_8 + 5 \text{O}_2 \rightarrow 3 \text{CO}_2 + 4 \text{H}_2\text{O}$
- $\text{Fe}_2\text{O}_3 + 3 \text{CO} \rightarrow 2 \text{Fe} + 3 \text{CO}_2$
- $\text{PCl}_5 + 4 \text{H}_2\text{O} \rightarrow 5 \text{HCl} + \text{H}_3\text{PO}_4$
- $8 \text{H}_2\text{S} + 8 \text{Cl}_2 \rightarrow \text{S}_8 + 16 \text{HCl}$
- $3 \text{Fe} + 4 \text{H}_2\text{O} \rightarrow \text{Fe}_3\text{O}_4 + 4 \text{H}_2$
- $\text{N}_2 + 3 \text{H}_2 \rightarrow 2 \text{NH}_3$
- $2 \text{N}_2 + \text{O}_2 \rightarrow 2 \text{N}_2\text{O}$
- $6 \text{CO}_2 + 6 \text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6 \text{O}_2$
- $\text{SiCl}_4 + 4 \text{H}_2\text{O} \rightarrow \text{H}_4\text{SiO}_4 + 4 \text{HCl}$
- $2 \text{H}_3\text{PO}_4 \rightarrow \text{H}_4\text{P}_2\text{O}_7 + \text{H}_2\text{O}$
- $\text{CO}_2 + 2 \text{NH}_3 \rightarrow \text{OC}(\text{NH}_2)_2 + \text{H}_2\text{O}$
- $2 \text{Al}(\text{OH})_3 + 3 \text{H}_2\text{SO}_4 \rightarrow \text{Al}_2(\text{SO}_4)_3 + 6 \text{H}_2\text{O}$
- $\text{Fe}_2(\text{SO}_4)_3 + 6 \text{KOH} \rightarrow 3 \text{K}_2\text{SO}_4 + 2 \text{Fe}(\text{OH})_3$
- $\text{H}_2\text{SO}_4 + 8 \text{HI} \rightarrow \text{H}_2\text{S} + 4 \text{I}_2 + 4 \text{H}_2\text{O}$
- $2 \text{Al} + 3 \text{FeO} \rightarrow \text{Al}_2\text{O}_3 + 3 \text{Fe}$
- $\text{Na}_2\text{CO}_3 + 2 \text{HCl} \rightarrow 2 \text{NaCl} + \text{H}_2\text{O} + \text{CO}_2$
- $\text{P}_4 + 5 \text{O}_2 \rightarrow 2 \text{P}_2\text{O}_5$
- $\text{K}_2\text{O} + \text{H}_2\text{O} \rightarrow 2 \text{KOH}$
- $4 \text{Al} + 3 \text{O}_2 \rightarrow 2 \text{Al}_2\text{O}_3$
- $2 \text{Na}_2\text{O}_2 + 2 \text{H}_2\text{O} \rightarrow 4 \text{NaOH} + \text{O}_2$
- $\text{C} + \text{H}_2\text{O} \rightarrow \text{CO} + \text{H}_2$
- $2 \text{H}_3\text{AsO}_4 \rightarrow \text{As}_2\text{O}_5 + 3 \text{H}_2\text{O}$
- $\text{Al}_2(\text{SO}_4)_3 + 3 \text{Ca}(\text{OH})_2 \rightarrow 2 \text{Al}(\text{OH})_3 + 3 \text{CaSO}_4$
- $\text{FeCl}_3 + 3 \text{NH}_4\text{OH} \rightarrow \text{Fe}(\text{OH})_3 + 3 \text{NH}_4\text{Cl}$
- $2 \text{Ca}_3(\text{PO}_4)_2 + 6 \text{SiO}_2 \rightarrow \text{P}_4\text{O}_{10} + 6 \text{CaSiO}_3$
- $\text{N}_2\text{O}_5 + \text{H}_2\text{O} \rightarrow 2 \text{HNO}_3$
- $2 \text{Al} + 6 \text{HCl} \rightarrow 2 \text{AlCl}_3 + 3 \text{H}_2$
- $6 \text{H}_3\text{BO}_3 \rightarrow \text{H}_4\text{B}_6\text{O}_{11} + 7 \text{H}_2\text{O}$
- $3 \text{Mg} + \text{N}_2 \rightarrow \text{Mg}_3\text{N}_2$
- $2 \text{NaOH} + \text{Cl}_2 \rightarrow \text{NaCl} + \text{NaClO} + \text{H}_2\text{O}$

Balancing Chemical Equations (Key)  
Reverse Side

51.  $\text{Li}_2\text{O} + \text{H}_2\text{O} \rightarrow 2 \text{LiOH}$
52.  $\text{CaC}_2 + 2 \text{H}_2\text{O} \rightarrow \text{C}_2\text{H}_2 + \text{Ca}(\text{OH})_2$
53.  $2 \text{Fe}(\text{OH})_3 \rightarrow \text{Fe}_2\text{O}_3 + 3 \text{H}_2\text{O}$
54.  $2 \text{Pb}(\text{NO}_3)_2 \rightarrow 2 \text{PbO} + 4 \text{NO}_2 + \text{O}_2$
55.  $\text{BaO} + \text{H}_2\text{O} \rightarrow \text{Ba}(\text{OH})_2$
56.  $3 \text{Ca} + 2 \text{AlCl}_3 \rightarrow 3 \text{CaCl}_2 + 2 \text{Al}$
57.  $4 \text{NH}_3 + 6 \text{NO} \rightarrow 5 \text{N}_2 + 6 \text{H}_2\text{O}$
58.  $4 \text{H}_3\text{PO}_3 \rightarrow 3 \text{H}_3\text{PO}_4 + \text{PH}_3$
59.  $\text{Fe}_2\text{O}_3 + 3 \text{C} \rightarrow 3 \text{CO} + 2 \text{Fe}$
60.  $4 \text{FeS} + 7 \text{O}_2 \rightarrow 2 \text{Fe}_2\text{O}_3 + 4 \text{SO}_2$
61.  $4 \text{NH}_3 + 5 \text{O}_2 \rightarrow 4 \text{NO} + 6 \text{H}_2\text{O}$
62.  $4 \text{Si} + \text{S}_8 \rightarrow 2 \text{Si}_2\text{S}_4$
63.  $\text{Hg}_2\text{CO}_3 \rightarrow \text{Hg} + \text{HgO} + \text{CO}_2$
64.  $\text{SiC} + 2 \text{Cl}_2 \rightarrow \text{SiCl}_4 + \text{C}$
65.  $\text{Al}_4\text{C}_3 + 12 \text{H}_2\text{O} \rightarrow 3 \text{CH}_4 + 4 \text{Al}(\text{OH})_3$
66.  $\text{V}_2\text{O}_5 + 6 \text{HCl} \rightarrow 2 \text{VOCl}_3 + 3 \text{H}_2\text{O}$
67.  $\text{Ag}_2\text{S} + 4 \text{KCN} \rightarrow 2 \text{KAg}(\text{CN})_2 + \text{K}_2\text{S}$
68.  $\text{Au}_2\text{S}_3 + 3 \text{H}_2 \rightarrow 2 \text{Au} + 3 \text{H}_2\text{S}$
69.  $2 \text{ClO}_2 + \text{H}_2\text{O} \rightarrow \text{HClO}_2 + \text{HClO}_3$
70.  $4 \text{KO}_2 + 2 \text{CO}_2 \rightarrow 2 \text{K}_2\text{CO}_3 + 3 \text{O}_2$
71.  $2 \text{MgNH}_4\text{PO}_4 \rightarrow \text{Mg}_2\text{P}_2\text{O}_7 + 2 \text{NH}_3 + \text{H}_2\text{O}$
72.  $\text{MnO}_2 + 4 \text{HCl} \rightarrow \text{MnCl}_2 + 2 \text{H}_2\text{O} + \text{Cl}_2$
73.  $\text{Pb} + 4 \text{Na} + 4 \text{C}_2\text{H}_5\text{Cl} \rightarrow \text{Pb}(\text{C}_2\text{H}_5)_4 + 4 \text{NaCl}$
74.  $\text{Ca}(\text{OH})_2 + \text{H}_3\text{PO}_4 \rightarrow \text{CaHPO}_4 + 2 \text{H}_2\text{O}$
75.  $\text{Zn} + 2 \text{NaOH} + 2 \text{H}_2\text{O} \rightarrow \text{Na}_2\text{Zn}(\text{OH})_4 + \text{H}_2$
76.  $\text{SrBr}_2 + (\text{NH}_4)_2\text{CO}_3 \rightarrow \text{SrCO}_3 + 2 \text{NH}_4\text{Br}$
77.  $3 \text{Hg}(\text{OH})_2 + 2 \text{H}_3\text{PO}_4 \rightarrow \text{Hg}_3(\text{PO}_4)_2 + 6 \text{H}_2\text{O}$
78.  $2 \text{Ca}_3(\text{PO}_4)_2 + 6 \text{SiO}_2 + 10 \text{C} \rightarrow 6 \text{CaSiO}_3 + \text{P}_4 + 10 \text{CO}$
79.  $\text{I}_4\text{O}_9 \rightarrow \text{I}_2\text{O}_6 + \text{I}_2 + \text{O}_2$  (this equation can be balanced with various sets of coefficients)  
           8,9,7,9           4,1,7,15           2,2,2,3           2,1,3,6
80.  $2 \text{C}_2\text{H}_3\text{Cl} + 5 \text{O}_2 \rightarrow 4 \text{CO}_2 + 2 \text{H}_2\text{O} + 2 \text{HCl}$
81.  $2 (\text{NH}_4)_2\text{Cr}_2\text{O}_7 \rightarrow 4 \text{NH}_3 + 2 \text{H}_2\text{O} + 2 \text{Cr}_2\text{O}_3 + 3 \text{O}_2$
82.  $2 \text{Al} + 2 \text{NaOH} + 6 \text{H}_2\text{O} \rightarrow 2 \text{NaAl}(\text{OH})_4 + 3 \text{H}_2$
83.  $2 \text{NH}_4\text{Cl} + \text{Ca}(\text{OH})_2 \rightarrow \text{CaCl}_2 + 2 \text{NH}_3 + 2 \text{H}_2\text{O}$
84.  $3 \text{Al} + 3 \text{NH}_4\text{ClO}_4 \rightarrow \text{Al}_2\text{O}_3 + \text{AlCl}_3 + 3 \text{NO} + 6 \text{H}_2\text{O}$
85.  $\text{H}_2\text{SO}_4 + 2 \text{NaHCO}_3 \rightarrow \text{Na}_2\text{SO}_4 + 2 \text{CO}_2 + 2 \text{H}_2\text{O}$
86.  $\text{Ca}_{10}\text{F}_2(\text{PO}_4)_6 + 7 \text{H}_2\text{SO}_4 \rightarrow 3 \text{Ca}(\text{H}_2\text{PO}_4)_2 + 7 \text{CaSO}_4 + 2 \text{HF}$
87.  $\text{Ca}_3(\text{PO}_4)_2 + 2 \text{H}_2\text{SO}_4 \rightarrow 2 \text{CaSO}_4 + \text{Ca}(\text{H}_2\text{PO}_4)_2$
88.  $\text{H}_3\text{PO}_4 + 12 (\text{NH}_4)_2\text{MoO}_4 + 21 \text{HNO}_3 \rightarrow (\text{NH}_4)_3\text{PO}_4 \cdot 12\text{MoO}_3 + 21 \text{NH}_4\text{NO}_3 + 12 \text{H}_2\text{O}$
89.  $2 \text{C}_4\text{H}_{10} + 4 \text{Cl}_2 + 11 \text{O}_2 \rightarrow 6 \text{CO}_2 + 2 \text{CCl}_4 + 10 \text{H}_2\text{O}$
90.  $2 \text{C}_7\text{H}_{10}\text{N} + 21 \text{O}_2 \rightarrow 14 \text{CO}_2 + 10 \text{H}_2\text{O} + 2 \text{NO}_2$
91.  $\text{H}_3\text{PO}_4 + 5 \text{HCl} \rightarrow \text{PCl}_5 + 4 \text{H}_2\text{O}$
92.  $2 \text{HCl} + \text{K}_2\text{CO}_3 \rightarrow 2 \text{KCl} + \text{H}_2\text{O} + \text{CO}_2$
93.  $\text{Ca}(\text{ClO}_3)_2 \rightarrow \text{CaCl}_2 + 3 \text{O}_2$
94.  $\text{C}_2\text{H}_5\text{OH} + 2 \text{O}_2 \rightarrow 2 \text{CO} + 3 \text{H}_2\text{O}$
95.  $\text{Xe} + 3 \text{F}_2 \rightarrow \text{XeF}_6$
96.  $\text{NH}_4\text{NO}_3 \rightarrow \text{N}_2\text{O} + 2 \text{H}_2\text{O}$
97.  $2 \text{Au}_2\text{O}_3 \rightarrow 4 \text{Au} + 3 \text{O}_2$
98.  $2 \text{C}_4\text{H}_{10} + 13 \text{O}_2 \rightarrow 8 \text{CO}_2 + 10 \text{H}_2\text{O}$
99.  $\text{Fe}_3\text{O}_4 + 4 \text{H}_2 \rightarrow 3 \text{Fe} + 4 \text{H}_2\text{O}$
100.  $3 \text{O}_2 \rightarrow 2 \text{O}_3$
101.  $\text{I}_2 + 6 \text{HNO}_3 \rightarrow 2 \text{HIO}_3 + 6 \text{NO}_2 + 2 \text{H}_2$
102.  $2 \text{C}_6\text{H}_6 + 15 \text{O}_2 \rightarrow 12 \text{CO}_2 + 6 \text{H}_2\text{O}$
103.  $\text{C}_2\text{H}_5\text{OH} + 3 \text{O}_2 \rightarrow 2 \text{CO}_2 + 3 \text{H}_2\text{O}$
104.  $12 \text{HClO}_4 + \text{P}_4\text{O}_{10} \rightarrow 4 \text{H}_3\text{PO}_4 + 6 \text{Cl}_2\text{O}_7$
105.  $3 \text{BaCl}_2 + \text{Al}_2(\text{SO}_4)_3 \rightarrow 3 \text{BaSO}_4 + 2 \text{AlCl}_3$
106.  $(\text{NH}_4)_2\text{Cr}_2\text{O}_7 \rightarrow \text{Cr}_2\text{O}_3 + \text{N}_2 + 4 \text{H}_2\text{O}$
107.  $2 \text{NaHCO}_3 \rightarrow \text{Na}_2\text{CO}_3 + \text{CO}_2 + \text{H}_2\text{O}$
108.  $\text{Fe}_2(\text{C}_2\text{O}_4)_3 \rightarrow 2 \text{FeC}_2\text{O}_4 + 2 \text{CO}_2$
109.  $\text{Ca}_3\text{P}_2 + 6 \text{H}_2\text{O} \rightarrow 3 \text{Ca}(\text{OH})_2 + 2 \text{PH}_3$
110.  $2 \text{As} + 6 \text{NaOH} \rightarrow 2 \text{Na}_3\text{AsO}_3 + 3 \text{H}_2$