

Key

WS 4.6 Types of Reactions

Complete the reactions by writing the products. *Remember*: when you form an element, don't forget about the 7 diatomic gases (N₂, O₂, F₂, H₂, Cl₂, Br₂, I₂) & to balance ionic formulas (drop & swap)

Composition Reactions	Decomposition Reactions	Single Replacement Reactions
1. $2Na + Cl_2 \rightarrow 2NaCl$	6. $MgO \rightarrow Mg + O_2$	11. $AgCl + Mg \rightarrow MgCl_2 + Ag$
2. $4K + O_2 \rightarrow 2K_2O$	7. $2AlCl_3 \rightarrow 2Al + 3Cl_2$	12. $3Ca + FeF_3 \rightarrow 3CaF_2 + Fe$
3. $H_2 + F_2 \rightarrow 2HF$	8. $2H_2O \rightarrow 2H_2 + O_2$	13. $HCl + Al \rightarrow AlCl_3 + H_2$
4. $Li + N_2 \rightarrow Li_3N$	9. $CaS \rightarrow Ca + S$	14. $KBr + Li \rightarrow LiBr + K$
5. $Ca + Cl_2 \rightarrow CaCl_2$	10. $2NF_3 \rightarrow N_2 + 3F_2$	15. $2K + Al_2O_3 \rightarrow 2Al + 3K_2O$
Double Replacement Reactions	Combustion Reactions	
16. $3CaCl_2 + Al_2O_3 \rightarrow 3CaO + 2AlCl_3$	21. $CH_4 + O_2 \rightarrow CO_2 + 2H_2O$	
17. $LiCl + Pb(NO_3)_2 \rightarrow Li(NO_3) + PbCl_2$	22. $C_5H_{12} + O_2 \rightarrow 5CO_2 + 6H_2O$	
18. $Na_2SO_4 + CaCl_2 \rightarrow 2NaCl + CaSO_4$	23. $O_2 + C_6H_6 \rightarrow$	
19. $3HCl + K_3PO_4 \rightarrow H_3PO_4 + 3KCl$	24. $C_2H_5OH + 3O_2 \rightarrow 2CO_2 + 3H_2O$	
20. $2HBr + Ca(OH)_2 \rightarrow 2H_2O + CaBr_2$	25. $C_{12}H_{22}O_{11} + O_2 \rightarrow 12CO_2 + 11H_2O$	

Determine the products & identify the type of reaction using these abbreviations in the spaces at left:

(CP=composition, DC=decomposition, SR=single replacement, DR=double replacement, CB=combustion)

** don't forget to check the activity series (at right) for single replacement reactions **

- SR 26. $Na + CaF_2 \rightarrow NR$
- CP 27. $Na + F_2 \rightarrow NaF$
- SR 28. $AgF + CaCl_2 \rightarrow$
- CB 29. $C_2H_4 + O_2 \rightarrow 2H_2O + 2CO_2$
- SR 30. $K_2S \rightarrow 2K + S$
- CB 31. $2Mg + O_2 \rightarrow 2MgO$
- SR 32. $Mg + AlBr_3 \rightarrow 2Al + 3MgBr_2$
- CB 33. $C_2H_6O + O_2 \rightarrow 2CO_2 + 3H_2O$
- DR 34. $CaSO_4 + MgCl_2 \rightarrow CaCl_2 + MgSO_4$
- SR 35. $HCl + Zn \rightarrow$
- SR 36. $Ag_2(C_2O_4) + Ca \rightarrow$
- SR 37. $Na_3N + Ca \rightarrow$
- SR 38. $Pb + FeBr_2 \rightarrow$
- SR 39. $CuI_2 \rightarrow$
- DR 40. $CaO + HNO_3 \rightarrow$
- SR 41. $Ni + Al(C_2H_3O_2)_3 \rightarrow NR$
- SR 42. $Al + SnCl_2 \rightarrow$
- DR 43. $Na_2SO_4 + Pb(NO_3)_2 \rightarrow$
- CP 44. $Na + S \rightarrow$
- SR 45. $HCl + Pt \rightarrow no\ reaction$
- CB 46. $C_6H_{12} + O_2 \rightarrow$
- SR 47. $Na + KCl \rightarrow NR$
- DC 48. $Na_2O \rightarrow$
- SR 49. $Cu + H_2SO_4 \rightarrow NR$
- SR 50. $Zn + H_2SO_4 \rightarrow$
- DC 51. $BaBr_2 \rightarrow$
- DR 52. $Li_2SO_4 + MgI_2 \rightarrow$
- CB 53. $C_2H_2 + O_2 \rightarrow$
- CP 54. $Mg + S \rightarrow$
- SR 55. $Mg + Cu(NO_3)_2 \rightarrow$

Li
K
Ca
Na
Mg
Al
Mn
Zn
Cr
Fe
Cd
Co
Ni
Sn
Pb
H
Cu
Hg
Ag
Pt
Au

+2
MgCl₂ + Ag