**Types of Chemical Reaction Worksheet**

*Balance the reactions* ***1 to 6*** *and indicate which type of chemical reaction (synthesis, decomposition, single-displacement, double-displacement or combustion) is being represented:*

1. \_\_\_\_ NaBr + \_\_\_\_ Ca(OH)2 🡪 \_\_\_ CaBr2 + \_\_\_\_ NaOH Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_ NH3+ \_\_\_\_ H2SO4 🡪 \_\_\_\_ (NH4)2SO4 Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_ C5H9O + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_ Pb + \_\_\_\_ H3PO4 🡪 \_\_\_\_ H2 + \_\_\_\_ Pb3(PO4)2 Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_ Li3N + \_\_\_\_ NH4NO3 🡪 \_\_\_ LiNO3 + \_\_\_ (NH4)3N Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_\_\_ HBr + \_\_\_ Al(OH)3 🡪 \_\_\_ H­2O + \_\_\_ AlBr3 Reaction Type : \_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Predict the products and indicate which type of chemical reaction (synthesis, decomposition, single-displacement, double-displacement, acid-base neutralization or combustion) is being represented in 7 to 20.*

1. \_\_Na3PO4 + \_\_ KOH 🡪 \_\_ NaOH + \_\_ K3PO4 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_MgCl2 + \_\_ Li2CO3 🡪 \_\_ MgCO3 + \_\_ LiCl Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_C6H12 + \_\_ O2 🡪 \_\_ CO2 + \_\_ H2O Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_H2CO3 + \_\_ Sr(OH)2🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_CaCO3 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. \_\_P4 + \_\_ O2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. \_\_ RbNO3 + \_\_BeF2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. \_\_ AgNO3 + \_\_ Cu 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. \_\_C3H6O + \_\_ O2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. \_\_C5H5 + \_\_ Fe 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. \_\_SeCl6 + \_\_O2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. \_\_ MgI2 + \_\_Mn(SO3)2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. \_\_O3 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. \_\_ NO2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. \_\_ HNO­­3 + \_\_ Sr(OH)2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
16. \_\_C6H4(OH)2 + \_\_O2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
17. \_\_Zn + \_\_ Ni(NO3)2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
18. \_\_AlCl3 + \_\_ Na2CO3 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
19. \_\_ Al + \_\_O2 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
20. \_\_ Ba(OH)2 + \_\_ H­2SO­4 🡪 Reaction Type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Challenge Questions

1. 27. \_\_C2H5OH + \_\_O2🡪
2. 28. \_\_ C3H6OS2 +\_\_ O2 🡪 \_\_CO­2 +\_\_ H2O +\_\_ SO2
3. 29. \_\_ C2H5OC2H5 + \_\_O2 🡪
4. 30. \_\_ C9H20O4S2 + \_\_ O2 🡪

Reaction types: word problems

For each question write the full skeleton equation and state the type of reaction.

1. A chemist was able to buy some solid lithium and liquid nitrogen, and combined the two together.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Ms. Ivankovic decides to do a chemistry experiment combining potassium iodide and lead (III) nitrate. What does she create?

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Photosysnthesis is a type of is a type of combustion reaction, where use glucose (C6H12O6) and oxygen gas to produce energy called ATP.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Sodium hydroxide is combined with hydrogen sulfate.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Solid mercury oxide breaking down.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A Piece of solid zinc is placed in a beaker with hydrochloric acid.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. To create a more neutral pH, Ms. Ivankovic mixed together hydrochloric acid and potassium hydroxide.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Did this create a more neutral pH in the products?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Ms. Ivankovic also wanted to see what she would produce by combining magnesium chloride and ammonium nitrate.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Ms. Ivankovic is trying to create a more neutral pH again, and combined calcium sulfide and hydrochloric acid.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Did this create a more neutral pH: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Show the equation for the reaction between solid gold and fluoride gas.

Skeleton equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reaction type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_