

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Types of Chemical Reactions: Synthesis and Decomposition

For each of the chemical reactions are listed below, complete the following:

 The type of chemical reaction (synthesis or decomposition)

 Balance the skeletal equation

1. Joseph Priestley discovered oxygen gas by chemically breaking down mercury (II) oxide.

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

 Balance the skeletal equation: \_\_\_\_\_ HgO  $\rightarrow$  \_\_\_\_\_ Hg + \_\_\_\_\_ O<sub>2</sub>

2. Sulphur burns in oxygen to produce sulphur dioxide.

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

 Balance the skeletal equation: \_\_\_\_\_ S<sub>8</sub> + \_\_\_\_\_ O<sub>2</sub>  $\rightarrow$  \_\_\_\_\_ SO<sub>2</sub>

3. Over a period of time, iron reacts chemically with oxygen to produce rust (iron (III) oxide).

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

 Balance the skeletal equation: \_\_\_\_\_ Fe + \_\_\_\_\_ O<sub>2</sub>  $\rightarrow$  \_\_\_\_\_ Fe<sub>2</sub>O<sub>3</sub>

4. Table salt can be chemically broken down to produce sodium metal and chlorine gas.

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

 Balance the skeletal equation: \_\_\_\_\_ NaCl  $\rightarrow$  \_\_\_\_\_ Na + \_\_\_\_\_ Cl<sub>2</sub>

5. Sodium Iodide  $\rightarrow$  Sodium + Iodine

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

 Balance the skeletal equation: \_\_\_\_\_ NaI  $\rightarrow$  \_\_\_\_\_ Na + \_\_\_\_\_ I<sub>2</sub>

6. Copper ore is broken down to remove the copper metal.

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

 Balance the skeletal equation: \_\_\_\_\_ CuO  $\rightarrow$  \_\_\_\_\_ Cu + \_\_\_\_\_ O<sub>2</sub>

7. Barbecue charcoal undergoes incomplete combustion to produce carbon monoxide.

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

 Balance the skeletal equation: \_\_\_\_\_ C + \_\_\_\_\_ O<sub>2</sub>  $\rightarrow$  \_\_\_\_\_ CO

8. Molten lye  $\rightarrow$  sodium metal + oxygen gas + hydrogen gas

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

 Balance the skeletal equation: \_\_\_\_\_ NaOH  $\rightarrow$  \_\_\_\_\_ Na + \_\_\_\_\_ O<sub>2</sub> + \_\_\_\_\_ H<sub>2</sub>

9. Freshly cut lithium reacts with nitrogen from the air.

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

 Balance the skeletal equation: \_\_\_\_\_ Li + \_\_\_\_\_ N<sub>2</sub>  $\rightarrow$  \_\_\_\_\_ Li<sub>3</sub>N

10. When magnesium metal is burned it reacts with oxygen to produce a bright light and new substance that is magnesium oxide.

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

 Write and balance the skeletal equation: \_\_\_\_\_ + \_\_\_\_\_  $\rightarrow$  \_\_\_\_\_