

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: decomposition

Balance the skeletal equation: 2 HgO \rightarrow 2 Hg + O₂

2. Sulphur burns in oxygen to produce sulphur dioxide.

Reaction type: synthesis

Balance the skeletal equation: S₈ + 8 O₂ \rightarrow 8 SO₂

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

Reaction type: synthesis

Balance the skeletal equation: 4 Fe + 3 O₂ \rightarrow 2 Fe₂O₃

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

Reaction type: decomposition

Balance the skeletal equation: 2 NaCl \rightarrow 2 Na + Cl₂

5. Sodium Iodide \rightarrow Sodium + Iodine

Reaction type: decomposition

Balance the skeletal equation: 2 NaI \rightarrow 2 Na + I₂

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

Reaction type: decomposition

Balance the skeletal equation: 2 CuO \rightarrow 2 Cu + O₂

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

Reaction type: synthesis

Balance the skeletal equation: 2 C + O₂ \rightarrow 2 CO

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

Reaction type: decomposition

Balance the skeletal equation: 2 NaOH \rightarrow 2 Na + O₂ + H₂

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

Reaction type: synthesis

Balance the skeletal equation: 6 Li + N₂ \rightarrow 2 Li₃N

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

Reaction type: synthesis

Write and balance the skeletal equation: 2 Mg + O₂ \rightarrow 2 MgO