Observation Table of Single and Double Displacement Reactions

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Reaction	**Reaction Type**	**Prediction**	**Test**
$Fe_{(s)} + CuSO_{4(aq)} \longrightarrow Cu_{(s)} + FeSO_{4(aq)}$	Single Displacement Reaction (Using Metal activity series)	Will produce a precipitate in the solution, no release of any gases	N/a
$2\,Ca_{(s)} + 2\,HCl_{(aq)} \longrightarrow 2\,CaCl_{(aq)} + H_{2(s)}$	Single Displacement Reaction (Produces a Gas)	Will produce bubbles at the bottom of the solution, of which will be hydrogen gas	Gas Test: Burning Splint test
$Fe + CaCl_2 \longrightarrow$ No Reaction	Single Displacement Reaction (No Reaction)	The Iron will rest at the bottom of the solution, with no bubbles or precipitate forming	N/a
$NaOH_{(aq)} + CuCl_{2(aq)} \longrightarrow NaCl_{(s)} + Cu(OH)_{2(aq)}$	Double Displacement Reaction (Producing a precipitate)	Will produce a precipitate which rest at the bottom of the solution, NaCl is salt	N/a
$Na_2CO_{3(aq)} + 2\,HCl_{(aq)} \longrightarrow 2\,NaCl_{(aq)} + H_2O_{(l)} + CO_{2(g)}$	Double Displacement Reaction (Produces a gas)	Will produce $2\,NaCl_{(aq)} + H_2CO_{3(aq)}$ but $H_2CO_{3(aq)}$ is unstable and become $H_2O_{(l)} + CO_{2(g)}$, producing carbon dioxide	Gas Test: Burning Splint test
$NaOH_{(aq)} + HCl_{(aq)} \longrightarrow NaCl_{(s)} + H_2O_{(aq)}$	Double Displacement (Neutralization)	Will produce a salt (NaCl) and water (H_2O), which is a neutralization reaction	N/a
$NaHCO_{3(aq)} + CaCl_{2(aq)} \longrightarrow$ No Reaction	Double Displacement Reaction (No Reaction)	The sodium bicarbonate will not react with the calcium chloride. The two aqueous solutions will form no precipitate or gas as the solubility table does not state the products of a supposed reaction	N/a