The National Orthodox School Shmaisani

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Subject: Science

Name: KEY **Title**: Lab report/ displacement reactions

Date: **Grade-Section**: 8CS

Objectives: Investigate the displacement reactions for different metals.

Method:

A single-displacement reaction is a reaction by which a more reactive element replaces a least reactive element in a compound. It can be represented as:

A + B-C → A-C + B **When A is more reactive than B**

This reaction most commonly occurs among metals that have different rates of reactivity

Notes:

Metal	Color
Zinc	Silver
Magnesium	Shiny Grey
Copper	Red brown

Solution	Color
Magnesium nitrate	Colorless solution
Zinc sulfate	Colorless solution
Copper sulfate	Blue Solution

	$Mg(NO_3)_2$	$ZnSO_4$	$CuSO_4$	
Zn	*No reaction*	*No reaction*	*Zinc displaces copper from copper sulfate and forms zinc sulfate solution.* *This is indicated by* • *fizzing* • *Color change from blue solution to colorless.* • *Cu particles will appear at the bottom of the test tube.* $Zn + CuSO_4 \rightarrow Cu + ZnSO_4$	***1***
Mg	*No reaction*	*Magnesium displaces zinc from zinc sulfate solution and forms magnesium sulfate solution* *This is indicated by* • *Bubbles* • *Slow reaction* $Mg + ZnSO_4 \rightarrow MgSO_4 + Zn$	*Magnesium displaces copper from copper sulfate and forms magnesium sulfate solution* *This is indicated by* • *Fizzing* • *Change in temperature* • *Color change from blue solution to colorless.* • *Cu particles will form a precipitate.* $Mg + CuSO_4 \rightarrow MgSO_4 + Cu$	***2***
Cu	*No reaction*	*No reaction*	*No reaction*	***0***

Conclusion:

Write the word equations for all the reactions that took place in your investigation.

Zinc + copper sulfate --------> copper+ zinc sulfate

Magnesium + copper sulfate --------> copper+ magnesium sulfate

Magnesium + zinc sulfate --------> zinc+ magnesium sulfate

Arrange the three metals according to their reactivity.

Mg

Zn

Cu