

# WJEC (Wales) Chemistry GCSE

## SP 2.3a - Determination of Relative Reactivities of Metals through Displacement Reactions

### Flashcards

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Why can displacement reactions be used to investigate the relative reactivities of metals?



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In displacement reactions, the more reactive metals will displace (remove and replace) the less reactive metals. The occurrence of displacement reactions will indicate which metal is more reactive.



What chemicals and materials are required to determine the relative reactivities of Copper, Zinc, Lead and Magnesium?



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1 cm strip lengths of:

- Copper foil
- Lead foil
- Magnesium ribbon
- Zinc foil

0.1 M solutions of:

- Copper(II) sulfate
- Lead(II) nitrate
- Magnesium sulfate
- Zinc sulfate



# Outline the procedure to determine the relative reactivities of Copper, Zinc, Lead and Magnesium



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1. Clean and dry a 4x4 spotting tile.
2. Put a few drops of zinc sulfate into a row of four of the depressions in the spotting tile. Label this row with the solution name.
3. Repeat for each metal solution, rinsing the pipette between each one.
4. For each column, place a strip of a certain metal into each of the four depressions. Repeat so that each column has the same metal in each of the four depressions.
5. Observe for 5 minutes and write down any observations of reactions.



What physical changes provide evidence that a chemical reaction has taken place?





What physical changes provide evidence that a chemical reaction has taken place?

- Colour change
- Effervescence
- Formation of a precipitate
- Temperature change



Why is it important that the pipette is cleaned before handling each solution?



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Cleaning the pipette ensures that none of the solutions interfere with the other reactions taking place.



A reaction was observed to take place when iron was added to copper sulfate. From this, which metal is more reactive?



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A reaction took place which indicates that iron displaced copper from the compound. This indicates that iron is more reactive than copper.



Give the chemical equation for the reaction which takes place between iron and copper sulfate



Give the chemical equation for the reaction which takes place between iron and copper sulfate

Iron + Copper sulfate  $\rightarrow$  Iron sulfate + Copper



What can be used to check that the experiment results are valid?





What can be used to check that the experiment results are valid?

The reactivity series - ordered list of the relative reactivity of metals.

