

0	1
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A more reactive metal can displace a less reactive metal from a compound.

A student placed a piece of copper wire into a solution of iron sulfate.

0	1	.	1
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What, if anything, would be observed, and why?

[2 marks]
[1]

No reaction / no change

Copper is less reactive than iron (therefore would not displace the sulfate) [1]

A student placed a strip of magnesium into a solution of zinc chloride.

0	1	.	2
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What, if anything, would be observed, and why?

[2 marks]

A black solid would form [1]

Magnesium is more reactive than zinc (therefore would displace the chloride from the zinc) [1]

0	2
0	2

Zinc displaces the iron from iron nitrate solution.

Complete the word equation below:

[1 mark]

zinc + iron (II) nitrate \rightarrow iron + zinc nitrate

0	2	.	2
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Write the balanced symbol equation for this reaction.

[1 mark]

$Zn + Fe(NO_3)_2 \rightarrow Fe + Zn(NO_3)_2$

NOTE : A species in Chemistry is an atom, molecule, ion, or particle.

Displacement reactions are examples of redox reactions in which a species is oxidised while another species is reduced.

0	2	.	3
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Name the species from the equation in 02.2 that is oxidised:

[1 mark]

Zinc / Zn

0	2	.	4
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Name the species from the equation in 02.2 that is reduced:

Iron (II) ions / Fe^{2+} ions

TOP TIP : You must use the word ions here, because it is the Fe^{2+} ions that gain electrons.

0	2	.	5
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Explain your reasoning in terms of electrons.

[2 marks]

Zinc loses electrons / goes from Zn to Zn^{2+} [1]

Iron ions gain electrons / goes from Fe^{2+} to Fe [1]

DON'T FORGET: OILRIG
Oxidation is Loss of electrons
Reduction is Gain of electrons

(Total 10 marks)

End