

## Alternative methods of copper extraction

- ① Write a balanced equation to show how copper can be extracted from copper sulfate,  $\text{CuSO}_4$ , without using electrolysis. (2 marks, ★★★)

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## Rusting

- ① The image below shows a rusted metal gate.



- a Identify the metal used to make the gate. (1 mark, ★)

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- b One way to prevent rust is galvanisation. Describe one other way the gate could have been protected from rusting. (2 marks, ★★)

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- ② Food cans are often made of iron or aluminium. Iron cans are coated in zinc or tin.

- a Explain how tin prevents an iron can from rusting. (2 marks, ★★★)

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- b Explain why an aluminium can does not rust. (2 marks, ★★★)

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- c An iron can coated in tin will still rust if the tin is scratched. An iron can coated in zinc does not rust. Explain why. (2 marks, ★★★)

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**NAIL IT!**

Galvanisation is an application of the order of reactivity of metals. A sacrificial metal, that is more reactive than iron, is coated on the surface of the metal. Zinc and magnesium are often used.