

Task

On this page, you will find a passage of text and a set of cards.

The information on the cards is **correct**, but the text has errors.

Use your cards to find and correct the mistakes.

Extend your learning by rewriting the text and adding information from the cards.

There are two ways of extracting ore from metal, heating the ore with oxygen, and electrolysis.

To decide which of these two methods is best, begin by deciding which metal needs to be extracted. Next, find the metal's position on the periodic table. If the metal is above oxygen, it can be extracted from its compound using electricity, in a process called electrolysis. However, if it is below carbon in the reactivity series, sealing the compound in the presence of carbon will release (displace) the metal. The reason for this is that carbon is less reactive.

Electrolysis requires electricity, and without it metals above carbon in the periodic table would not be able to be extracted. Consequently, aluminium cans, fertilisers and all of the other goods that need very reactive metals, would not be produced.

Information cards

Metal-bearing rock is only called 'ore' when it can be extracted for profit.	Metals that are more reactive are more difficult to extract from their compounds.
Carbon is used to displace metals that are less reactive than it.	After the metal ore has been removed from the ground, the metal needs to be removed from the compound.
If the metal to be extracted is above carbon in the reactivity series electrolysis is used to remove the metal from its compound.	Gold is unreactive, it does not form compounds, and therefore it can be found at the surface of the Earth as nuggets.
In some countries, mining is very important for the economy.	$\text{metal oxide} + \text{carbon} \rightarrow \text{carbon dioxide} + \text{metal}$
Cans are made from aluminium. Plants need magnesium and potassium. Calcium is used to make toothpaste.	Silver is unreactive.

Answers

There are two ways of extracting metal from ore, heating the ore with carbon, and electrolysis.

To decide which of these two methods is best, begin by deciding which metal needs to be extracted. Next, find the metal's position in the reactivity series. If the metal is above carbon, it can be extracted from its compound using electricity, in a process called electrolysis. However, if it is below carbon on the reactivity series, heating the compound in the presence of carbon will release (displace) the metal. The reason for this is because carbon is more reactive.

Electrolysis requires electricity, and without it metals above carbon in the reactivity series would not be able to be extracted. Consequently, aluminium cans, fertilisers and all of the other goods that need very reactive metals, would not be produced.

Teaching notes

This resource is suitable for KS3 middle to higher achievers.

It includes a piece of text with errors and cards with facts. The cards do not give students direct answers but infer them.

Middle achievers may take longer to find the errors and there is an extension activity that asks them to rewrite the text using the information given in the cards. This will be a challenge as some of the cards will demand deeper thinking and discussion.

The activity is best done in pairs.