Recycling metals

Specification reference

* C10.2.2 Ways of reducing the use of resources

Aims

In this activity you will look at the recycling of aluminium drinks cans.

Learning outcomes

After completing this activity, you should be able to:

* list some products that can be reused or recycled
* explain the importance of reusing and recycling products
* explain why some recycling can be difficult
* evaluate ways of reducing the use of limited resources when information is given
* evaluate the environmental, economic, and social impacts of reusing and recycling products
* evaluate ways of reducing the use of limited resources
* suggest ways of minimising the environmental impact of exploiting raw materials
* distinguish between reducing, reusing, and recycling.

Setting the scene

Here are some facts about the recycling of aluminium drinks cans:

* Recycling aluminium cans requires 5% of the energy needed to make aluminium from bauxite ore.
* The energy saved by recycling a single aluminium can run a tablet computer for 8 hours.
* Nearly 70% of aluminium cans that have ever been produced have been recycled and are still in use today.
* An aluminium can that is recycled is often back on a shop shelf within as little as 60 days.

Task

You are going to have a debate on the motion:

‘Aluminium drinks cans should not be recycled’.

Your teacher will split the class into groups. Each group should have a speaker to present the group’s views. As a group, think about the following points to support your argument for/against the recycling of aluminium drinks cans:

* effect on jobs like mining for mineral ores
* any health issues
* any effect on the taste of the drink inside
* energy considerations
* use of limited resources
* quantity of waste produced
* cost of manufacture
* pollutant issues
* other environmental effects
* speed of production of the can from raw material.

Questions

1 Identify what the ‘three R’s’ stand for when discussing aluminium cans and the environment.

(*3 marks*)

2 List three ways you could reduce the use of a limited resource such as a mineral ore.

(*3 marks*)

3 Glass can be reused but aluminium cans have to be recycled. Explain the difference.

(*2 marks*)

Student follow-up

1 Complete the paragraph about recycling aluminium cans by filling in the spaces with the following words. Each word can only be used once.

|  |
| --- |
| hot air rolling mill impurities ingots  cans furnace shredded iron labels |

First the aluminium cans are squashed and into small pieces. The pieces move on a conveyor belt under a powerful magnet to remove any present. Then the pieces are blasted with to remove any or ink on the outside of the can. The pieces are then fed into a at 700 °C where the , called dross, rise to the surface and are scraped off. The pure aluminium is then cooled and cast into , which then go to the where they are made into thin sheets for making . (*9 marks*)

2 Complete the table below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Environmental  effect | Economic  effect | Effect on raw material resources |
| **reduced use of aluminium cans** |  |  |  |
| **reuse of aluminium cans** |  |  |  |
| **recycling of aluminium cans** |  |  |  |

(*9 marks*)