

SUBJECT:

UNIT: Year 8: Earth's resources



While you were away.

Lesson one: Reactivity series

1. What two non-metals are on the reactivity series?
2. Is the most reactive metal at the top or bottom?

Lesson Two: Metal displacement

1. What do reactants produce when they react?
2. Define reactivity

Lesson three: Extracting iron using carbon

1. What is used to extract iron from its ore?
2. Write the word equation for the extraction of iron

Lesson Four: Recycling

1. What materials can we recycle?
2. Why should we recycle?

Lesson Five: Polymers

1. What is a polymer?
2. What is a monomer?

Lesson Six: Composites

1. What is a composite?
2. Give an example of a composite

SUBJECT: Science

UNIT: Y8 Earth's resources



Key Vocabulary

Reactivity series
Displacement
Temperature change
Exothermic
Reaction
Reactant
Product
Extraction
Oxidation
Reduction
Polymer
Composite
Ceramic
Recycling

Chemical reaction

When reactants react to produce a product. We say a chemical reaction has occur. The reactivity is how well they react.

Unreactive Metals

Unreactive metals are found in their elemental form. These are called native metals and these are in *italics* in the reactivity series below.

Recycling

Rather than throwing away materials so they go straight to landfill, some can be recycled.

Recycling makes old materials into new materials that can be used again.

We are able to recycle many materials by our roadside rubbish collections, such as: Glass. Paper and card. Plastics. Cans.

Polymer

A polymer is a very long *molecule*. Polymers are made up of many *repeating units* called *monomers*.

'Poly' means many, and 'mer' means part, so polymer literally means something that is made of 'many parts.'

'Mono' means one, so a monomer is 'one part' of a polymer.

Ambitious Vocabulary

Reactivity
Extraction

Synthetic polymers often have these *properties* in common:

- they are chemically unreactive
- they are solids at room temperature
- they can be moulded into shape
- they are electrical insulators
- they are strong and hard-wearing

Reactive Metals

Other metals are found as **metal oxides** and **metal carbonates**. To get the metals out of the compounds **chemical reactions** need to take place. If the metal is **below carbon** on the **reactivity series** then it is **separated** by **heating** the metal compound **with carbon** to give the **metal and carbon dioxide**.

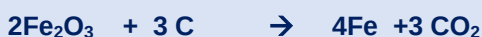
Metals **above carbon** in the **reactivity series** are separated using **electrolysis**. This uses **electricity** to separate the substances in the compound. The metal compound is **heated** until it **melts** and **electricity flows** through the **molten** compound **separating** the **metal** from the rest of the compound.

Reactivity series of metals:

Potassium
Sodium
Calcium
Magnesium
carbon
Zinc
Iron
Tin
Copper
Silver
Gold
Platinum

Extraction of iron

Iron oxide + carbon → iron + carbon dioxide



Composites

Composite materials are made from two or more different types of material. Composite materials are synthetic and are made by a chemical process.