

# Using resources

# REVIEW IT!

- 1 A high percentage of aluminium cans are recycled.
- a Give 2 reasons why recycling aluminium is a good idea.  
Some properties of copper and aluminium are shown in the table below:

Property	Copper	Aluminium
Density/ g per cm <sup>3</sup>	8.94	2.7
Average tensile strength/10 <sup>7</sup> Pa	32	8

- b One alloy of aluminium is duralumin and this is used for airplane construction. Duralumin contains 94% aluminium, 4% copper and 1% magnesium.  
What property of aluminium makes its alloy duralumin a good material for this use?
- c Aluminium and copper are both good electrical conductors. Explain why aluminium is preferred to copper for overhead electrical cables.
- d i What are the metals added to steel in order to make stainless steel?  
ii Stainless steel is used to make cutlery. Give 2 reasons why it is chosen for this use.
- 2 The table below shows the properties of three materials, X, Y and Z.

Substance	Relative tensile strength	Electrical resistivity/ ohm-m	Relative thermal conductivity	Melting point/°C
X	1	$3 \times 10^{-8}$	800	930
Y	10	$9 \times 10^{13}$	116	2940
Z	0.1	$10^{14}$	1	75

- a Using the data in the table explain why material Y should be chosen for thermally insulating an oven.
- b How much is the resistivity of Y greater than that of X?
- c Using the data in the table explain which material you would use for making:
- i The handle of a saucepan?  
ii The body of a saucepan?
- d i Give the letter of the material that is a metal. Explain your choice using the data in the table.  
ii Give the letter of the material that is a ceramic. Explain your choice using the data in the table.