Question on Cu mining and processing   Name: Eric Turner

9. Figure 2 below shows the energy used to extract copper from ores of different purities.

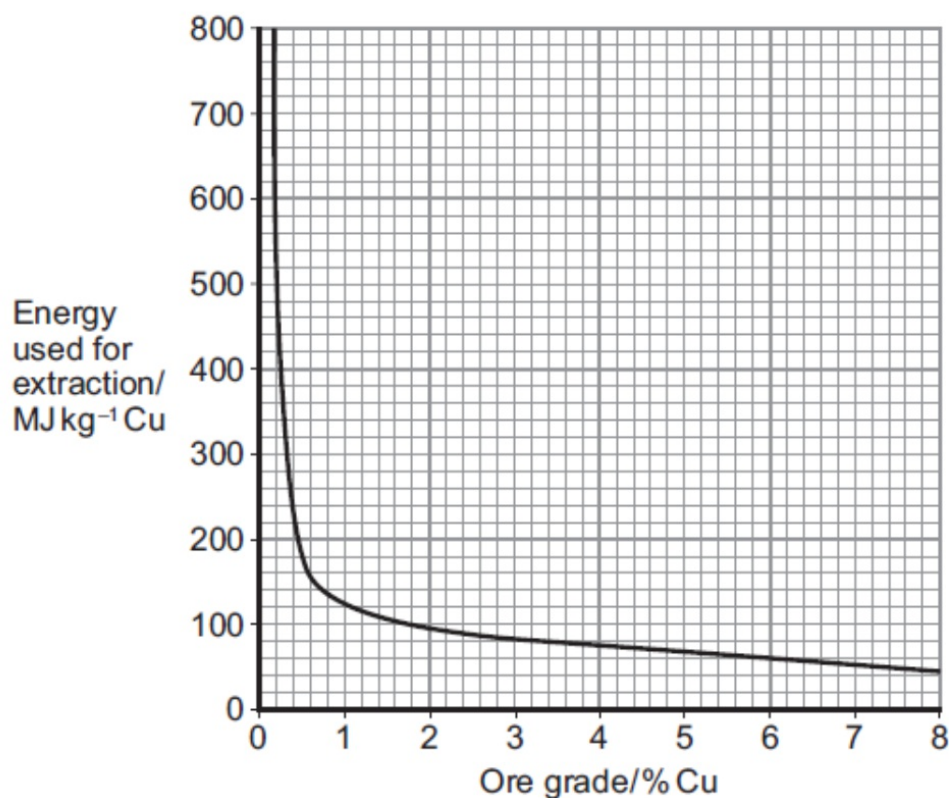**Table 2** below shows the average copper content in ores mined in Australia.

Date	Average copper content of ores / % Cu
1900	7.60
1950	1.35
2010	0.95
2050 (prediction)	0.60

(a) Suggest reasons why the energy used for extraction increases as the ore grade declines.

As the ore grade declines the ore is less concentrated. This means that more excavations/mining must occur for the same amount of minerals to be collected. Therefore increasing the amount of energy required.

(b) Use the information in **Table 2** to calculate the predicted percentage decrease in the average copper content of ores between 1900 and 2050. [2 marks]
Show your working.

Predicted decrease

...................................%

(c) Use the information in **Figure 2** and **Table 2** to calculate the predicted percentage change in the energy used to extract copper from its ore between 1900 and 2050.
Show your working. [2 marks]

...................................% change

(d) Describe **one** method that is used to extract metals from low grade ores. [2 marks]

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(e) Exploratory drilling to search for new deposits is very expensive.
Describe **two** methods that are used to find the areas where drilling may be worthwhile.
[4 marks]

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(f) Suggest why an increase in the market price may change the cut-off ore grade of a mineral. [3 marks]

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(Total 15)