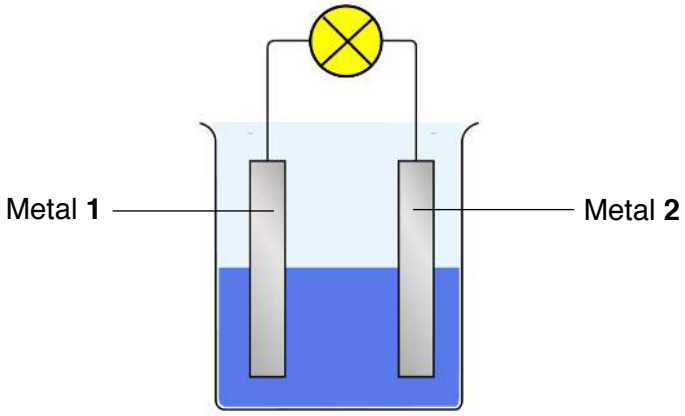
0 1 A student investigated simple cells using the apparatus shown in the figure below.



- If metal **2** is more reactive than metal **1** then the voltage measured is positive.
- If metal **1** is more reactive than metal **2** then the voltage measured is negative.
- The bigger the difference in reactivity of the two metals, the larger the voltage produced.

The student's results are shown in the table below.

Metal 2 / Metal 1	Chromium	Copper	Iron	Tin	Zinc
Chromium	0.0 V				
Copper	1.2 V	0.0 V			
Iron	0.5 V	not measured	0.0 V		
Tin	0.8 V	-0.4 V	0.3 V	0.0 V	
Zinc	0.2 V	-1.0 V	-0.3 V	-0.6 V	0.0 V

The ionic equation for the reaction occuring at the zinc electrode in the simple cell made using copper and zinc electrodes is:

$$Zn \rightarrow Zn^{2+} + 2e^{-}$$

0 1 . 1 Zinc is oxidised in this reaction.

Give a reason why this is oxidation.

[1 mark]

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Look at the table above.

0 1 . 2 Which **one** of the metals used was the least reactive?

[2 marks]

Give a reason for your answer.

Metal……

Reason ……

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0 1 . 3 Predict the voltage that would be obtained for a simple cell that has iron as metal **1** and copper as metal **2**.

[3 marks]

Explain your answer.

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(Total 6 marks)

End