

## Assignment Guide: Unit 12 Electrons in Action

Outline Guidance for Assignment 12.1	Commentary on Mark Allocation
<p><b>Task 1</b></p> <p><b>Research work</b></p> <p>This should include the theory of the production of electrons in an electrochemical cell.</p> <p>The coverage would be that in 12.2.2.</p> <p>Include description of cell that is chosen to be investigated with reason for choice.</p>	<p>Consideration of the theory should lead to the choice of conditions to change. One of the conditions changed should show no effect if AO3a MB3 is to be obtained.</p>
<p><b>Task 2</b></p> <p><b>Risk assessment work to be completed</b></p> <ul style="list-style-type: none"> <li>• Safety considerations to include</li> <li>• Any hazard associated with the metals the salt solutions</li> <li>• The use of the salt bridge.</li> </ul> <p><b>Practical work</b></p> <p>Students to be presented with the basic experimental details of constructing a cell using two half-cells.</p> <p>Students to complete and record conditions they used and carry out a number of relevant experiments.</p>	<p>No risk assessment included, no marks.</p> <p>Indicate if risk assessments have been independently produced.</p> <p>Language of write-up advised not to use "I".</p> <p>Member of staff to record evidence of completion of the students' practical work (suggested use – a timecard).</p>



<p><b>Task 3/Task 4</b></p> <p><b>Results</b></p> <ul style="list-style-type: none"> <li>• Tabulated</li> <li>• Displayed graphically</li> </ul> <p>Suitable analysis of results needs to be included. With a comparison of results linked to the requirements of the original assignment.</p> <p>The emf of this cell under standard conditions can be calculated using standard <math>E_o</math> values. (Examples of calculations of emf of various cells using <math>E_o</math> values).</p> <p><b>Conclusions</b></p> <p>Drawn from the data and applied to the brief.</p> <p><b>Accuracy, evaluation of procedures</b></p> <ul style="list-style-type: none"> <li>• Discussion of the accuracy of the apparatus used</li> <li>• Limitations of the method</li> <li>• Possible other methods</li> <li>• Discussion of how results could be expected from original theory.</li> </ul>	<p>Results suitably presented, to be used by another company.</p> <p>Must be at least two sets of results in order to achieve MB1.</p> <p>If help has been given, only MB1 possible.</p> <p>MB3 requires the data to be tabulated to the accuracy of which the apparatus is capable and the data to be displayed with units etc. and in "easy-to-read" formats.</p> <p>Possible contribution to AO2. Actual mark will depend on whether the calculations are straightforward or complex.</p> <p>MB1 will be given for an obvious conclusion. Conclusion must be related to the theory of cells for MB3.</p> <p>MB3 is awarded only if alternative methods are suggested. Standard hydrogen electrode.</p>
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