

**Identification of unknowns**

Your challenge is to correctly identify two sets of different chemical substances which will be labelled only with letters:

**Set 1:** A, B, C, D. These are aqueous solutions of  $\text{BaCl}_2$ ,  $\text{CuSO}_4$ ,  $\text{H}_2\text{SO}_4$  and  $\text{NaCl}$ .

**Set 2:** G, H, I, J. These are aqueous solutions of  $\text{AgNO}_3$ ,  $\text{ZnSO}_4$ ,  $\text{BaCl}_2$  and  $\text{NaI}$ .

**Planning the Investigation**

For each set you will only be allowed to use the chemicals included in that set to help identify. You will get one period of lesson time to plan your investigation in pairs. Your plan must be presented as a clear, numbered, step by step sequence of reactions for each of the three sets. These should outline exactly what observations you intend to make, and which chemical will be identified in each step. Your plan will be collected in and marked according to the following criteria:

Set 1		Set 2			
Unknown	Appropriate reaction/ observation described	Unknown	Appropriate reaction/ observation described		
<b>A</b>	1 mark	<b>G</b>	1 mark		
<b>B</b>	1 mark	<b>H</b>	1 mark		
<b>C</b>	1 mark	<b>I</b>	1 mark		
<b>D</b>	1 mark	<b>J</b>	1 mark		
	<b>/4</b>		<b>/4</b>		
<p><b>/2 marks</b> will be awarded for describing appropriate procedures; and  <b>/2 marks</b> for appropriate safety and disposal requirements.</p>					
<b>Total marks for planning:</b>					<b>/12</b>

<b>Conducting the investigation</b> <ul style="list-style-type: none"> <li>Safe laboratory procedures, accurate recording and appropriate cleaning up and packing away.</li> <li>Correct Identifications</li> </ul>	   <b>/5</b> <b>/5</b>
<b>Processing the data</b> <ul style="list-style-type: none"> <li>Construct net ionic equations and record observations for reactions.</li> </ul>	 <b>/5</b>
<b>Evaluating the Investigation</b> <ul style="list-style-type: none"> <li>Assessed in a post-prac test on your understanding of the key concepts in the investigation</li> </ul>	 <b>/23</b>
<b>TOTAL</b>	<b>/50</b>