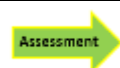






<p><b>This half term: Skills, Knowledge and Understanding to be developed:</b></p> <p><b>Skills (students <u>WILL BE ABLE</u> to by the end of the Learning Programme):</b> Students will be able to: determine the quantities present at equilibrium from given data; calculate values of pH of both strong and weak acids, and strong bases from given numerical data; carry out a titration using a pH probe; determine the order of a reaction by the inspection of data and be able to write a rate equation for a reaction and calculate its rate constant and determine its units;</p> <ul style="list-style-type: none"> <li><b>Knowledge (students <u>WILL KNOW</u> by the end of the Learning Programme):</b> the definition of equilibrium; the definition of Lowry-Bronsted acids and bases; the differences between strong and weak acids and bases; how to use pH, <math>K_w</math>, <math>K_a</math>, and <math>pK_a</math> in calculations involving strong and weak acids and pH and <math>K_w</math> in calculations involving strong bases.</li> <li><b>Understanding (students <u>WILL DEMONSTRATE THEIR UNDERSTANDING</u> by the end of the learning programme):</b> through: explaining how the value of <math>K_c</math> and <math>K_p</math> is effected by temperature; explaining how buffers work; explaining the importance of buffer solutions in living systems and industrial processes; determining <math>pK_a</math> for a weak acid using its titration curve; sketching the shapes of different titration curves, and determining the most suitable indicator for these titrations.</li> </ul>		<p><b>Key Terms / Words:</b> equilibrium, acid, base, buffer, weak, strong, pH probe, indicator, pH curve, equivalence point, rate equation, rate constant, reaction order</p>	
<p><b>LP 1 – Weeks 1 &amp; 2 Learning Outcomes:</b></p> <p><b>Equilibria, <math>K_c</math> and <math>K_p</math></b></p> <ol style="list-style-type: none"> <li>Students will know the effect of temperature on <math>K_p</math> and <math>K_c</math> for exothermic and endothermic reactions.</li> <li>Students will know how to calculate values of <math>K_p</math> and <math>K_c</math> and quantities present at equilibrium from given data.</li> <li>Students will understand the significance of the magnitude of an equilibrium constant and how this relates to the position of equilibrium</li> </ol>		<p><b>Success criteria:</b></p> <ol style="list-style-type: none"> <li>Students will be able to determine the quantities present at equilibrium from given data and calculate values for <math>K_c</math> and <math>K_p</math>.</li> </ol>	<p><b>Homework LP 1</b> <b>1/3</b> Complete examination questions in their booklet/ revise for an APP on equilibria.</p>
<p><b>LP 1 – Weeks 3 &amp; 4 Learning Outcomes:</b></p> <ol style="list-style-type: none"> <li>Students will apply their skills, knowledge and understanding by completing an APP.</li> </ol> <p><b>Acid – Base Equilibria:</b></p> <ol style="list-style-type: none"> <li>Students will know the definition of Lowry-Bronsted acids and bases.</li> <li>Students will know how to calculate the pH of strong acids and bases.</li> <li>Students will demonstrate their understanding of the differences between strong and weak acids and bases.</li> <li>Students will know how to use pH, <math>K_w</math>, <math>K_a</math>, and <math>pK_a</math> in calculations involving strong and weak acids.</li> </ol>	<p style="text-align: center;">  </p>	<p><b>Success criteria:</b></p> <ol style="list-style-type: none"> <li>Students will explain the difference between strong and weak acids and bases.</li> <li>Students will carry out multi step calculations involving strong and weak acids</li> </ol>	<p><b>Homework LP 1</b> <b>2/3</b> Complete examination questions in their booklet.</p>
<p><b>LP 1 – Weeks 5 &amp; 6 Learning Outcomes:</b></p> <p><b>Practical:</b></p> <ol style="list-style-type: none"> <li>Students will be able to carry out a titration using a pH probe.</li> <li>Students will be able to recognise and sketch the shapes of different titration curves, and determine the most suitable indicator for these titrations.</li> <li>Students will be able to explain how buffers work and how to use pH, <math>K_w</math>, <math>K_a</math> and <math>pK_a</math> in appropriate calculations.</li> <li>Students will know the importance of buffer solutions in living systems and industrial processes.</li> </ol>		<p><b>Success criteria:</b></p> <ol style="list-style-type: none"> <li>Students will be able to interpret graphs and data in order to select the appropriate indicator for any type of titration.</li> <li>Students will carry out a titration using a pH probe.</li> <li>Students will be able to carry out multi-step calculations involving buffers.</li> </ol>	<p><b>Homework LP 1</b> <b>3/3</b> Complete examination questions in their booklet and revise for the summative assessment</p>



<p><b>LP1 – Weeks 7 &amp; 8</b></p> <p><b>Rates of Reaction</b></p> <p>13. Students will know that there are different methods of determining the rate of a reaction and be able to select the correct method for a given reaction.</p> <p>14. Students will be able to determine the order of a reaction by the inspection of data and be able to write a rate equation for a reaction and calculate its rate constant and determine its units.</p> <p>15. <b>Students will apply their skills, knowledge and understanding by completing a SA on work done so far on acids, bases and buffers.</b></p>	<p>Assessment →</p> <p>SA</p> <p>MARK</p> <p>GRADE</p>	<p>7. Students will be able to explain the different methods of determining the rate of a reaction. Students will be able to use given data to identify the order of reaction with respect to</p> <p><b>Success criteria:</b></p> <p>8. a given reactant and hence write a rate equation for a reaction. Students will be able to plot a graph of concentration against time and analyse how the rate changes.</p>	<p><b>Homework LP 1</b> <b>3/3</b></p> <p>Complete examination questions in their booklet.</p>
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