

| Learning Plan 1  |  | Subject/Pwnc: Science – Double Applied  |  | Year/Blwyddyn: 10 |   |   |
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| <p><b><u>The Four Purposes in Science and Technology:</u></b></p> <p><b>Ambitious, capable learners, who:</b><br/>set themselves high standards; seek and enjoy challenge; are increasingly knowledgeable and skilful; ask questions; enjoy solving problems; can explain ideas and concepts; can use number effectively in different contexts; interpret data and apply mathematical concepts; use digital technologies creatively to communicate, find and analyse information; research and evaluate critically what they find.</p> <p><b>Enterprising, creative contributors, who:</b><br/>take measured risks.</p> <p><b>Ethical, informed citizens, who:</b><br/>find, evaluate and use evidence in forming views; consider the impact of their actions when making choices and acting; are committed to sustainability.</p> <p><b>Healthy, confident individuals, who:</b><br/>are establishing their ethical beliefs; face and overcome challenge.</p> |  |   |  |                   |   |   |
| <p><b>Knowledge focus/what matters:</b><br/>Being curious and searching for answers is essential to understanding and predicting phenomena.<br/>The world around us is full of living things which depend on each other for survival.<br/>Forces and energy provide a foundation for understanding our universe.</p>   |  |   |  |                   |   |   |
| Learning objective/key question  | What will I know and be able to do?<br>I can...  | How will I develop my skills?<br>(Success Criteria)   |  |                   | Homework/Gwaith cartref to support progress |   |
| Week 1<br>1.1.1 The cell and respiration   | <ul style="list-style-type: none"><li>Identify organelles in animal and plant cells.</li><li>Use the formula to work out image size, magnification or actual size. (image = mag X actual)</li><li>Use a light microscope to view plant and animal cells (red onion/cheek).</li></ul> | <p>I can answer questions using key words.</p> <p>I can use light microscopes to view and draw cells.</p> <p>I can recall key scientific facts and figures.</p> <p>I can spell key scientific words correctly.</p> <p><b>*Specified prac. *</b></p>                   |  |                   | Wk 1  | Homework:<br>Exam question on animal and plant cell organelles.<br><br>Set:<br><br>Due: |
| Week 2<br>1.1.1 The cell and respiration   | <ul style="list-style-type: none"><li>Describe what a specialised cell is and why we need them</li><li>State several examples of specialised cells</li><li>State the levels of organisation within organisms and define each level</li></ul>   | <p>I can provide responses using key terms in context.</p> <p>I can observe and describe ways in which substances move across membranes.</p> <p>I can reflect on my answers based on teacher feedback.</p> <p>I can describe levels of organisation of organisms.</p> |  |                   | Wk 2  | Homework:<br>Exam question on osmosis and diffusion<br><br>Set:<br><br>Due:             |

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|  | <ul style="list-style-type: none"> <li>Describe what diffusion, active transport and osmosis are.</li> <li>Explain factors that affect the rate of diffusion/movement across membranes</li> </ul>   | I can predict the movement of molecules using concentration gradients.  |      |  |
| Week 3<br>1.1.2<br>Obtaining the materials for respiration | <ul style="list-style-type: none"> <li>Describe what an enzyme is and what job it does.</li> <li>Explain the lock and key theory.</li> <li>Identify and explain the causes for enzymes to denature.</li> <li>Describe what happens to enzymes to cause denaturing.</li> </ul> | I can describe and explain the lock and key theory.<br><br>I can identify the causes of enzyme denaturing.<br><br>I can explain the effect of temperature and pH on enzyme action.<br><br>I can conduct experiments with precision.<br><br>I can process and display data appropriately.<br><br><b>*Specified prac. *</b> | Wk 3 | Homework:<br>Enzymes exam question.<br><br>Set:<br><br>Due:                                |
| Week 4<br>1.1.2<br>Obtaining the materials for respiration | <ul style="list-style-type: none"> <li>Label the human respiratory system</li> <li>Explain the functions of the respiratory system</li> <li>Describe and explain how the alveoli is adapted to its function.</li> </ul>   | I can recall the structure of the respiratory system.<br><br>I can describe the adaptations of the alveoli and explain their function.<br><br>I can explain the functions of the respiratory system.  | Wk 4 | Homework:<br>Exam questions relating to chemical calculations.<br><br>Set:<br><br>Due:     |
| Week 5<br>1.1.2<br>Obtaining the materials for respiration | <ul style="list-style-type: none"> <li>Describe anaerobic respiration.</li> <li>Describe aerobic respiration.</li> <li>Compare and contrast anaerobic and aerobic respiration.</li> </ul>   | I can use previous knowledge define respiration.<br><br>I can make predictions based on previous learning.<br><br>I can select the correct chemical equations.<br><br>I can combine previous learning to inform my answers to questions.  | Wk 5 | Homework:<br>Reacting masses exam questions with extended reading.<br><br>Set:<br><br>Due: |

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| <p>Week 6<br/>1.1.2<br/>Obtaining the materials for respiration</p> | <ul style="list-style-type: none"> <li>• The comparison of the respiratory system to the bell jar model.</li> <li>• Describe the pressure and volume changes that permit inspiration and expiration.</li> <li>• Describe and explain the percentage composition of inhaled and exhaled air.</li> <li>• Describe and explain the mucus and cilia as a cleaning/protective mechanism.</li> <li>• Explain the link between smoking and respiratory issues.</li> <li>• Describe and explain effects of smoking on the body.</li> </ul> | <p>I can evaluate the effectiveness of a scientific model.</p> <p>I can describe the causes and effects of the mechanism of breathing.</p> <p>I can compare percent I can use my knowledge and understanding to predict effects as part of my scientific exploration.</p> <p>I can explore and describe the effects of smoking on the cilia and respiratory system.</p> <p>I can describe the ways smoking effects the body and make links to long term conditions.</p> | <p>Wk 6</p> | <p>Homework:<br/>Labelling the alveoli and explaining adaptations.</p> <p>Set:</p> <p>Due:</p> |
| <p>Week 7<br/>1.1.2<br/>Obtaining the materials for respiration</p> | <ul style="list-style-type: none"> <li>• Describe the structure of the digestive system</li> <li>• Label the digestive system</li> <li>• Describe and explain the function of the digestive system and the organs involved.</li> </ul> <p><b>*1.1.1 &amp; 1.1.2 End of Topic Assessment*</b></p>   | <p>I can use my knowledge and understanding to predict effects as part of my scientific exploration.</p> <p>I can explore and describe the functions of the different parts of the digestive system.</p> <p>I can explain the need for digestion and how food is broken down.</p>   | <p>Wk 7</p> | <p>Homework:<br/>6 mark QER questions about food breakdown</p> <p>Set:</p> <p>Due:</p>         |