**Parkside Knowledge and Skills Expectations**

**Subject: Science**

**Unit: Year 8 Human Biology including respiration**

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| **Knowledge and Skills Expectations** |
| State the content of a healthy human diet: carbohydrates, lipids, proteins, vitamins, minerals, dietary fibre and water |
| Explain why each component of a healthy human diet is needed |
| Calculate the energy requirements in a healthy daily diet |
| Understand the consequences of imbalances in the diet, including obesity, starvation and deficiency diseases |
| Recall the structure of the human digestive system: salivary glands, oesophagus, stomach, small intestine, large intestine, rectum, anus |
| State the function of each structure in the human digestive system |
| Describe how the human digestive system is adapted to its function |
| Explain how the digestive system digests food |
| Define an enzyme as a biological catalyst |
| Understand the importance of bacteria in the human digestive system |
| State the structure and function of the respiratory system in humans: trachea, bronchus, bronchioles, alveoli, diaphragm, ribs |
| Explain how the human respiratory system is adapted to function |
| Describe the mechanism of breathing to move air in and out of the lungs |
| Use a pressure model to explain the movement of gases |
| Measure lung volume |
| Describe gas exchange in the human respiratory system |
| Understand the impact of exercise, asthma and smoking on the human gas exchange system |
| *Plan an investigation into the effect of exercise on breathing* |
| Describe the effects of recreational drugs (including substance misuse) on behaviour, health and life processes |
| *Investigate the effect of alcohol on the liver* |
| Interpret data and draw conclusions from graphs |
| State the word equation for aerobic respiration and its relationship to the breakdown of organic molecules to enable all the other chemical processes necessary for life. |
| State the word equation for anaerobic respiration |
| Describe the process of anaerobic respiration in humans and microorganisms, including fermentation |
| Describe the differences between aerobic and anaerobic respiration in terms of reactants and products formed |
| *Plan a scientific investigation into a named factor on the rate of respiration in yeast* |