**Year 8: ASK Yourself!**

**Subject: Science**

**Topic: Autumn**

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|  | **Launching**  **1-2** | **Developing**  **3-4** | **Progressing**  **5-6** | **Mastering**  **7-9** |
| Text Box**kills** |  |  | Shape |  |
|  | Explain how a physical property of part of the skeleton relates to its function.  Breathing occurs through the action of muscles in the ribcage and diaphragm  Construct ray diagrams to show how light reflects off and refracts.  Describe how speed of sound can be measured. | Use a diagram to predict the result of a muscle contraction or relaxation.  In gas exchange, oxygen and carbon dioxide  move between alveoli and the blood.  Use ray box equipment to investigate how light reflects and refracts  Investigate the speed of sound and collect data.  . | Use word equations to describe aerobic and anaerobic respiration.  The amount of  oxygen required by body cells determines the rate of breathing.  Predict whether light will reflect, refract or scatter when it hits the surface of a given material.  Interpret results from speed of sound experiment. | Describe similarities and differences between aerobic and anaerobic respiration.  Explain how specific activities involve aerobic/ anaerobic respiration  Interpret models of breathing.  Explain reflection and refraction of light  Interpret results from speed of sound experiment using echoes. |
| Text Box                 **nowledge** | Shape |  |  |  |
|  | The parts of the human skeleton work as a system for support, protection, movement and the production of new blood cells.  Name the parts of the gas exchange  System.  Understand properties of waves and explain the frequency, amplitude and wavelength. Describe light as a wave.  Sound consists of vibrations which travel as a longitudinal waves. | Antagonistic pairs of muscles create movement when one contracts and the other relaxes.  Oxygen is  transported to cells for aerobic respiration and  carbon dioxide, a waste product is  removed.  For a mirror, the angle of incidence equals the angle of reflection.  .  The greater the amplitude, the louder the sound. The greater the frequency, the higher the pitch | Respiration is a series of chemical reactions, in cells, that breaks down glucose to provide energy and form new molecules.  Explain how the parts of the gas exchange system are adapted to their function.  When a light ray meets a different medium, some of it is absorbed and some reflected.  Understand the relationship between frequency and wavelength. | How different organisms use respiration for energy  Explain how changes in volume and pressure  inside the chest move gases in and out of the  lungs.  When light enters a denser medium it bends towards the normal; when it enters a less dense medium it bends away from the normal.  use ideas about energy transfer to explain how soundproofing works. |