Gulf English School Year 8 Science

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| TOPICS: Breathing & Respiration/Light | | |
| Theme: Describe how oxygen enters the body and the journey taken to the cells. Explain how light travels and how we are able to see colour | Level: 5-7 | |
| Objectives: appreciate that respiration is essential for life and organisms have adaptations for this purpose. Understand that light wavelengths allow us to see all the colours of the rainbow. | | |
| Focussing Statements | Key Words Practical | |
| **Aerobic Respiration**   * Model aerobic respiration using a word equation. * Compare burning (combustion) and respiration.   **Breathing System**   * Explain how specialised cells keep the lungs clean (mucus production and ciliated epithelial cells). * Explain how the lungs are adapted for efficient gas exchange. * Explain how and why a concentration gradient is maintained for oxygen and carbon dioxide between the blood and lungs. * Explain the changes in heartbeat and breathing rate during exercise. * Explain some of the effects of reduced oxygen supply on the body. * Explain the effects of some chemicals in tobacco smoke on the body.   **Comparing Gas Exchange**   * Describe how gas exchange occurs in plants. * Compare the human gaseous exchange system with those of other animals.   **Anaerobic Respiration**   * Recall that anaerobic respiration releases less energy than aerobic respiration. * Model anaerobic respiration using a word equation. * Describe how lactic acid is removed from tissues. * Explain why anaerobic activity cannot be sustained.   **Light on the Move**   * Compare longitudinal and transverse waves. * Represent the path of light as straight lines with arrows on diagrams and describe how you can demonstrate that light travels in straight lines. * Use a ray diagram to explain how shadows are formed and to explain image formation in pinhole cameras.   **Reflection**   * State the meaning of: diffuse, specular, incident ray, reflected ray. * Use the ray model of light to explain how a periscope works. * Use ray diagrams to explain the law of reflection and to describe the differences in light reflected from smooth and rough surfaces. * Describe the characteristics of the image formed by a plane mirror and use ray diagrams to explain its formation.   **Refraction**   * Explain why refraction occurs. * State the meaning of focal length, focus, and principal axis. * Relate the power of a lens to its shape.   **Cameras & Eyes**   * Use ray diagrams to explain image formation in pinhole cameras. * Identify which parts of the eye cause refraction of light and describe how light is focused on the retina.   **Colours**   * Explain why coloured objects appear coloured. * Explain how filters can be used to make coloured light. * Explain why objects look different in light of different colours.   Assessment: Class activities, class tests, Termly test/exams | Aerobic  Oxygen  Glucose  Carbon dioxide  Water  Combustion  Ventilation  Inhalation  Diffusion  Alveoli  Haemoglobin  Arteries  Veins  Capillaries  Gills  Anaerobic  Vacuum  Rays  Transparent  Translucent  Opaque  Reflection  Refraction  Retina  Pupil  Primary colours  Secondary colours  Prism  Dispersion  Filters | Testing for CO2  Lung dissection  Exercising  Pinhole camera  Reflection/refraction  Making a rainbow |