**Sound and light engineer**

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| **Definitions** | | | **Primary colours of light** | | | |
| 1 | Reflection | Waves, including sound and light, can be reflected at the boundary between two different materials. | 16 | Red | Red + green = yellow | |
| 2 | Refraction | Light changes speed and direction when it passes through a different density material | 17 | Blue | Blue + red = magenta | |
| 3 | Normal | A line at right angles to a surface. | 18 | Green | Green + blue = cyan | |
| 4 | Angle of incidence | The angle between the normal and incident ray | **Investigation skills** | | | |
| 5 | Angle of reflection | The angle between the normal and reflected ray. | 19 | Describe | Recall the facts, evets or process in an accurate way. | |
| 6 | Spectrum | A band of colours, as seen in a rainbow, produced by separation of light, based on its wavelength. | 20 | Explain | State the reasons for something happening. Use the format:…..because…..therefore | |
| 7 | Pupil | The opening in the iris, through which light passes. | 21 | Plot | Mark on a graph using the data given | |
| 8 | Iris | The coloured part of the eye, controls how much light passes through the pupil. | 22 | Evaluate | Give the for and against sides of the argument. | |
| 9 | Cornea | The protective layer on the eye which also refracts the light. | **C:\Users\sttg01\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\DD746728.tmp** | | |  |
| 10 | Rods | Light sensitive cells which detect light intensity. |
| 11 | Cones | Light sensitive cells which detect colour. |
| 12 | Virtual image | A virtual image cannot be projected on a screen |
| 13 | Real image | The point at which rays of light focus to form an image. |
| 14 | Prism | A prism is a transparent optical element with flat, polished surfaces that refract light. |
| 15 | Shadow |  | **Diagram 1: Reflection** | | | **Diagram 2: Refraction** |

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| **Definitions** | | |  | | | |
| 1 | Amplitude | The height of a wave (see fig 2) | 16 | Ultrasound | Sounds made with a frequency above 20,000Hz | |
| 2 | Frequency | The number of waves per second | 17 | Infrasound | Sounds made with a frequency below 20 Hz | |
| 3 | Wavelength | The length of a wave – one complete cycle | 18 | Dissipated | Energy that is lost to the environment | |
| 4 | Pitch | The higher the frequency, the higher the pitch |  | | | |
| 5 | Longitudinal | The vibrations are parallel to the direction of wave travel. | 19 | Compression | Regions of high pressure due to particles being close together, in a longitudinal wave (see fig 2) | |
| 6 | Transverse | The vibrations are at right angles to the direction of wave travel. | 20 | Rarefaction | Regions of low pressure due to the particles being spread further apart (see fig 2) | |
| 7 | Wave | Waves transfer energy without transferring matter | 21 | Speed equation | Speed = distance / time | |
| 8 | Vacuum | An area without any particles e.g Space | 22 | Oscilloscope | A used to display and analyse the waveform of electronic signals. | |
| 9 | Cochlea | Filled with fluid, receives sound in the form of vibrations |  | | |  |
| 10 | Ear drum | Thin layer of skin that vibrates |
| 11 | Auditory nerve | Converts the vibrations in the ear into electrical impulses to send to the brain. |
| 12 | Seismic | Waves generated by an earthquake |
| 13 | Hertz | The unit of frequency. 5 waves per second will have a frequency of 5Hz |
| 14 | Decibels | The unit for measuring the volume of a sound. |
| 15 | Superposition | When waves meet, they add or cancel out. | **Fig 1: Longitudinal wave** | | | **Fig 2: Transverse wave** |