**Year 8 Waves (P1)**

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| 1. I can state that waves transfer energy between two points | \* | ☺ | 😐 | ☹ |
| 1. I can compare the difference between transverse and longitudinal waves | \*\* | ☺ | 😐 | ☹ |
| 1. I can label the amplitude and wavelength of a wave on wave diagrams | \* | ☺ | 😐 | ☹ |
| 1. I can explain what the frequency of a wave is and state the units it is measured in | \* | ☺ | 😐 | ☹ |
| 1. I can explain how sound waves are produced | \* | ☺ | 😐 | ☹ |
| 1. I can describe how sound waves are produced using loudspeakers | \*\* | ☺ | 😐 | ☹ |
| 1. I can describe how sound waves are detected using a microphone and the ear drum | \*\* | ☺ | 😐 | ☹ |
| 1. I can explain how a microphone is used in a telephone | \*\* | ☺ | 😐 | ☹ |
| 1. I can link the frequency of sound to the pitch that we detect | \* | ☺ | 😐 | ☹ |
| 1. I can state the auditory range of humans and animals | \* | ☺ | 😐 | ☹ |
| 1. I can state what ultrasound is and give examples of some ultrasound applications | Ext | ☺ | 😐 | ☹ |
| 1. I can explain how some applications of ultrasound work | Ext | ☺ | 😐 | ☹ |
| 1. I can explain how the speed of sound changes as it travels through different materials | \* | ☺ | 😐 | ☹ |
| 1. I can explain why there is a delay between seeing lightning and hearing thunder | \* | ☺ | 😐 | ☹ |
| 1. I can describe how light is reflected off different surfaces and the difference between diffuse scattering and specular reflection | Ext | ☺ | 😐 | ☹ |
| 1. I can explain how shadows are created | \*\* | ☺ | 😐 | ☹ |
| 1. I can draw a ray diagram to show how light is reflected off a mirror | \*\* | ☺ | 😐 | ☹ |
| 1. I can draw a ray diagram to show how a pinhole camera works | Ext | ☺ | 😐 | ☹ |
| 1. I can describe what happens when light is refracted | \*\* | ☺ | 😐 | ☹ |
| 1. I can draw a ray diagram to show how a convex lens focuses light | Ext | ☺ | 😐 | ☹ |
| 1. I can describe how white light is dispersed through a prism | \*\* | ☺ | 😐 | ☹ |
| 1. I can explain why objects have different colours | \*\* | ☺ | 😐 | ☹ |
| 1. I can explain why objects appear to have different colours when using coloured (non-white) light | Ext |  |  |  |
| 1. I can describe the energy changes as light is absorbed by the retina and by photo-sensitive materials in cameras | Ext | ☺ | 😐 | ☹ |

I understand (and can spell) the keywords listed below and can use them in 1-24 above.

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| **Keywords** |
| vibration, vibrating, instrument, pitch, note, frequency,  sound energy, sound source, absorbed, ear defenders,  straight lines, , reflect, transparent, translucent, opaque,  object, shadow, screen, reflect, reflection |
| pitch, Hertz, Hz,  noise, decibels, dB,  compression, rarefaction, vibration energy, neighbouring particles, vacuum,  speed of sound, reflection, echoes,  outer ear, ear canal, middle ear, ear drum, inner ear, cochlea, nerve cells, auditory nerve,  auditory range, 20kHz, kilohertz, hearing defects, wax,  ultrasound, foetal scans, echo location,  peaks, crests, troughs, amplitude, rest position, transverse, longitudinal, superposition,  absorb, ray, reflect, transmit, ‘speed of light’, vacuum, transverse wave, electromagnetic wave, ray diagram, plane surface,  specular reflection, the normal, Law of Reflection, angle of incidence, angle of reflection, diffuse scattering, luminous, non-luminous,  refracted, refraction, medium, more dense, towards the normal, slows down, less dense, away from the normal, speeds up,  cornea, iris, pupil, lens, focuses, retina, optic nerve,  convex lens, magnified image,  colour, spectrum, prism, dispersion, colour filter |
| *Extension: propagates, dissipates, microphone diaphragm, electric current, kinetic energy,*  *wavelength, wave equation, speed = frequency x wavelength,*  *superposition, maximum, in phase, minimum, out of phase,*  *inverted, ‘long-sight’, ‘short-sight’, concave lens,*  *primary colours, secondary colours, magenta, cyan, yellow,*  *retina, chemical energy, electrical energy, photosensitive material* |