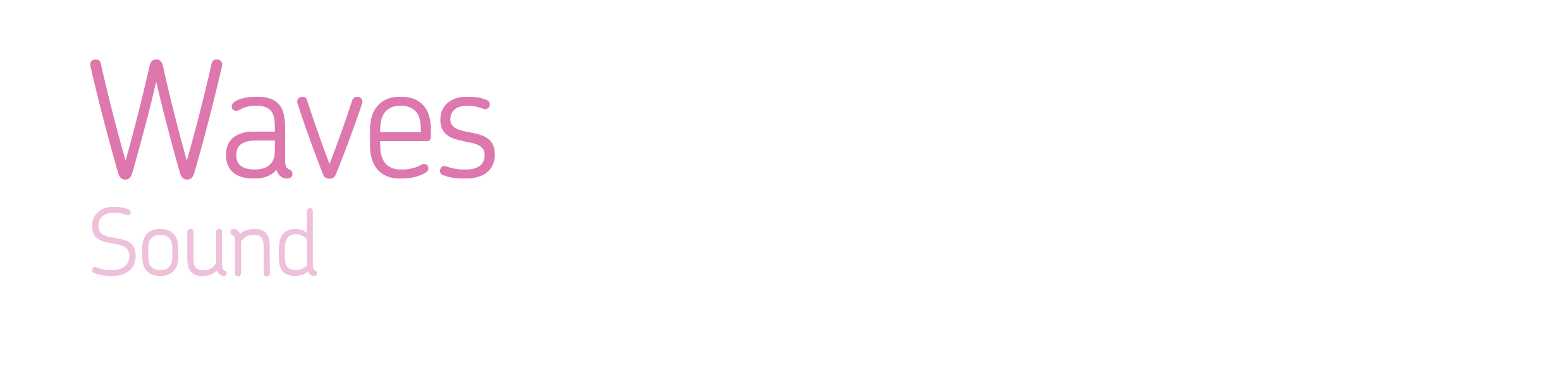
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Relate changes in the shape of an oscilloscope trace to changes in pitch and volume.



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| --- | --- | --- | --- | --- |
| Know | |  | Apply  2  1 | |
| Ideas | |  |  |  |
| K1 | Sound consists of vibrations which travel as a longitudinal wave through substances. The denser the medium, the faster sound travels. |  | A2  A1 | Explain observations where sound is reflected, transmitted or absorbed by different media. |
| Explain observations of how sound travels using the idea of a longitudinal wave. |
| K2 | The greater the amplitude of the waveform, the louder the sound. The greater the frequency (and therefore the shorter the wavelength), the higher the pitch. |  | A3 | Describe the amplitude and frequency of a wave from a diagram or oscilloscope picture. |
| A4 | Use drawings of waves to describe how sound waves change with volume or pitch. |
|  | |  |  |  |
| Facts | |
| K3 | Sound does not travel through a vacuum. |  | A5 |  |
| K4 | The speed of sound in air is 330 m/s, a million times slower than light. |  |  |  |
|  | |  |  |  |
| Key words | |
| K5 | **Vibration:** A back and forth motion that repeats. |  | A6 |  |
| K6 | **Longitudinal wave:** Where the direction of vibration is the same as that of the wave. |  |  |  |
| K7 | **Volume:** How loud or quiet a sound is, in decibels (dB). |  |  |  |
| K8 | **Pitch:** How low or high a sound is. A low (high) pitch sound has a low (high) frequency. |  |  |  |
| K9 | **Amplitude:** The maximum amount of vibration, measured from the middle position of the wave, in metres. |  |  |  |
| K10 | **Wavelength:** Distance between two corresponding points on a wave, in metres. |  |  |  |
| K11 | **Frequency:** The number of waves produced in one second, in hertz. |  |  |  |
| K12 | **Vacuum:** A space with no particles of matter in it. |  |  |  |
| K13 | **Oscilloscope:** Device able to view patterns of sound waves that have been turned into electrical signals. |  |  |  |
| K14 | **Absorption:** When energy is transferred from sound to a material. |  |  |  |
| K15 | **Auditory range:** The lowest and highest frequencies that a type of animal can hear. |  |  |  |
| K16 | **Echo:** Reflection of sound waves from a surface back to the listener. |  |  |  |
| 3 | Extend |  |  |  |
| E1 | Suggest the effects of particular ear problems on a person's hearing. |  |  |  |
| E2 | Evaluate the data behind a claim for a sound creation or blocking device, using the properties of sound waves. |  |  |  |
| E3 | Use diagrams to compare the waveforms a musical instrument makes when playing different pitches or volumes. |  |  |  |
| E4 |  |  |  |  |
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| E4 |  |  |  |  |
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