Mechanical Waves and Sound Visuals Information

Slide 2:
Water waves are a good example of transverse waves, the wave moves perpendicular to the medium, meaning that, although the water particles are moving up and down, the wave itself is moving forward.

Slide 3:
In longitudinal waves, on the other hand, the wave moves parallel to the medium. The particles move back and forth about an average position, but the wave moves forward. Sound is an example of a longitudinal wave.
See Production of Sound by Khan Academy

Slide 4:
Amplitude (A): the largest displacement from the average position
Crest: the point at the peak of the wave
Trough: the point at the bottom of the wave
Wavelength: the distance from one point on the wave to the next point at the same height, going in the same direction (i.e. from peak to peak, zero to zero, or trough to trough)

Slide 5:
Frequency (f):

- The number of waves passing a point every second
- Units are per second (/s) or Hertz (Hz)
- Period (T)
- Inverse of frequency (1/f), or the time it takes for one wave to pass a point
- Units are usually seconds (s)

Slide 6:
An oscilloscope changes a vibration or sound into a voltage and displays it on a two-dimensional plot, as a transverse wave. You may use an oscilloscope app, such as Oscillo or Keysight Oscilloscope, on your phone or tablet during this activity.

Slide 15:
One of the most powerful uses of sound waves is ***ultrasound*** or sonography. This type of technology is used, not only to view fetuses in the womb and medical diagnostics, but also for imaging small fractures in airplane and spaceship parts, and for sonar or radar defense systems. Ultrasound is very high frequency sound that humans cannot hear.

Slide 16:
Research one of the following applications for sound waves and write a 150-200 word paragraph explaining how the application uses sound waves.