Foxford Learning Plan

YEAR 12

Unit 1 Physics

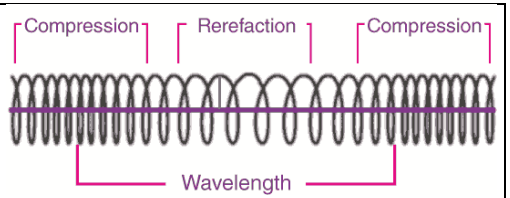
Key Vocabulary

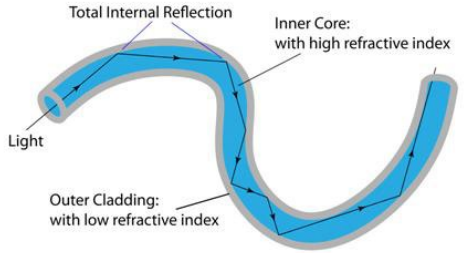
Frequency	The number of whole cycles occurring in one second
Longitudinal wave	A wave vibrating in the direction of propagation
Transverse wave	A wave in which the medium vibrates at right angles to the direction of its propagation
Oscillation	A regular repeating motion about a central value
Node	Points along a wave where the displacement is at a minimum
Antinode	Points of maximum amplitude that occur halfway between each pair of nodes
Stationary Waves	Wave motions that store energy rather than transferring energy to other locations
Superimpose/ superposition	The adding together of wave displacements that occur when waves from two or more separate sources overlap at any given location
Displacement	How far the quantity that is in an oscillation has moved from its mean value at any given time
Wavelength	Wavelength is the distance between identical points of a wave
Phase Difference	The difference in phase angle between two waves of the same frequency and wavelength, where 360(degrees) represents a whole cycle of the waveform
Diffraction	Occurs when an object causes a wave to change direction and bend around it
Amplitude	The maximum value of displacement in the oscillation cycle - always measured from the mean position
Total Internal Reflection	All the wave energy is internally reflected none is lost as a refracted ray. This happens when all angles of incidence are larger than the critical angle

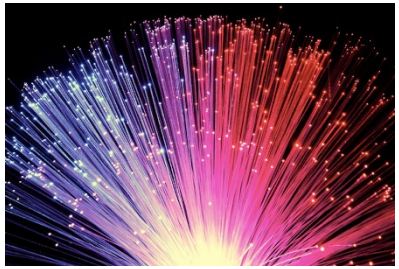
Over the course of the topic, I will be able to:

Key Skills

- Demonstrate knowledge of scientific facts, terms, definitions and scientific formulae
  Command words: give, label, name, state
- Demonstrate understanding of scientific concepts, procedures, processes and techniques and their application
- Analyse, interpret and evaluate scientific information to make judgements and reach conclusions
- Make connections, use and integrate different scientific concepts, procedures, processes or techniques







I will understand:

- Features common to all waves and use the following terms as applied towaves: periodic time, speed, wavelength, frequency, amplitude, oscillation
- The difference between longitudinal and transverse waves
- Concepts of displacement, coherence, path difference, phase difference, superposition as applied to diffraction gratings
- Understand the industrial application of diffraction gratings, to include emission spectra and identifying gases
- Use and apply the wave equation and speed equation
- The concept and applications of stationary waves resonance
- The principles of fibre optics and total internal reflection
- How to calculate critical angles at a glass–air interface
- The applications of fibre optics in medicine to include endoscopes
- Understand the applications of fibre optics in communication, to include analogue and digital signals: analogue-to-digital conversion, broadband