NHSG Key stage 3: Unit Overview for P5.1 Wave behaviour

Scheme of Learning	P5.1 Wave behaviour
Learning outcomes	**Subject Content** Knowledge and understating of: • Key terms of wave motion – amplitude, wavelength, frequency and period • Mathematical relationship between wavelength, frequency and wave velocity • Describing the differences between transverse and longitudinal waves. • Effects of reflection, transmission, and absorption of waves at material interface. **Skill set** • ability to differentiate between transverse and longitudinal waves. • Ability to apply and rearrange the wave equation to calculate frequency, wavelength or wave speed. • Ability to describe all the keywords related to wave motion.
Key questions	**Key questions** • How is energy transmitted without a movement of matter?
Knowledge	**Key Concepts & Skills Development** • Definition of wavelength, frequency, time period and amplitude. • Calculation of wavelength/frequency/wave speed **Key Terminology** • Period • Frequency • Wavelength • Velocity • Amplitude • Reflection • Refraction • Compression • Rarefaction
Ongoing Assessment	• Do it now booklets in the beginning which checks the previous knowledge of students from last lesson, a couple of lessons before and lessons from the past. • MWB activities throughout the lesson

	• No hands up questioning **Misconceptions:** • It is the wave and not the water or air itself that travels • Make clear the distinction between frequency and time-period. • Although they will often have heard of the terms ultrasound and sonar, learners find it challenging to explain how images and traces are formed and to apply their understanding to calculations. Learners often misinterpret distance and displacement–time graphical presentations of waves.
Key Assessment	• Do it now booklet in the beginning of the lessons • MWB activities throughout the lesson. • Mid topic multiple choice test
Content	Vocabulary is explicitly taught and practiced using the resource booklet
Careers	Opticians
Diversity and Inclusion	Ibn Sahl (about 940-1000) was a Persian mathematician and physicist. Whilst only fragments of his written works had survived, modern researchers have reconstructed parts of his text. He studied curved lenses and mirrors. He developed a law of refraction of light (several centuries before Snell and other European scientists worked on this). He used this law to determine optimal shapes for lenses and mirrors. Ibn AL Haytham (about 965-1040) was a Persian mathematician and physicist. Known in European writing as Alhazen, his scientific work included contributions in optics and visual perception. He stated the principle of least time for refraction. He was an early advocate for a 'scientific' approach of testing a hypothesis against the results of experiments.
Support	'Do it now' booklet, Resource booklet and exam booklet