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**Knowledge Rich Curriculum Plan**

SCIENCE- Waves



| **Lesson/Learning Sequence** | **Intended Knowledge:**  *Students will know that…* | **Prior Knowledge:**  *In order to know this, students need to already know that…* | **Working Scientifically** | **Tiered Vocabulary and Reading Activity** | **Assessment** | **Support** |
| --- | --- | --- | --- | --- | --- | --- |
| ***01***  ***Transverse Waves*** | *Students will know that a wave moves forwards when a perturbation passes through a medium, and after it has passed the material of the medium returns to its original position. This is what distinguishes the motion of a wave from the motion of an object*. *Students will be able to describe and explain the movement of each ‘particle’ of a transverse wave as the wave moves forward to be the particles oscillate up and down.* | *Students will know that a transverse wave travels forward and the medium through which it travels does not.*  *Students will know what a particle is.* | *Communicate – Pupils will be able to construct an explanation of how a Transverse wave is propagated.* | **Perturbation -**A deviation of a system, moving object, or process from its regular or normal state or path, caused by an outside influence.  **Medium** *-* A substance that makes possible the transfer of energy from one location to another  **Transverse** *-* a wave in which the medium vibrates at right angles to the direction of its propagation  **Oscillate** *-* literally denotes something moving in one direction, then moving back | *Retrieval questions*  *Simple exam questions*  *End of topic test*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/guides/z9bw6yc/revision/1*](https://www.bbc.co.uk/bitesize/guides/z9bw6yc/revision/1)  [*https://www.youtube.com/watch?v=6eZ66AotTkE*](https://www.youtube.com/watch?v=6eZ66AotTkE) |
| ***02 Describing Waves*** | *Students will be able to compare the speed of a transverse waves that have different frequencies to each other and are moving through a common medium. The waves move at the same speed in the same medium. Students will be able to compare the amount of energy transferred by transverse waves that have different frequencies to each other and are moving through a medium. Greater frequencies transfer more energy.* | *Students will be able to describe and explain the movement of each particle of a transverse wave.*  *Students will be able to describe waves in terms of oscillations through mediums.* | *Analyse – analyse patterns in wave diagrams, being able to compare amplitude and frequencies of different sound waves* | **Amplitude -**The maximum extent of a vibration or oscillation, measured from the position of equilibrium.  ***Frequency*** *-* the rate per second of a vibration constituting a wave  ***Crest*** *– the peak or top of the wave*  ***Trough*** *– the bottom of a wave* | *Retrieval questions*  *Simple exam questions*  *End of topic test*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/guides/z9bw6yc/revision/1*](https://www.bbc.co.uk/bitesize/guides/z9bw6yc/revision/1)  [*https://www.youtube.com/watch?v=6eZ66AotTkE*](https://www.youtube.com/watch?v=6eZ66AotTkE) |
| ***03 How does sound move?*** | *Students will be able to describe and explain how the movement of each particle of a longitudinal wave causes a perturbation to move forward*  *Students will be able to compare the speed of sound waves that have a different frequency or loudness to each other and are moving through a common medium*  *Students will be able to compare the energy transferred by sound waves that have a different frequency or loudness to each other and are moving through a common medium* | *Students will be able to recognise that as a sound wave travels forward, the medium it travels through does not.*  *Students will be able to describe the properties of a wave using the key literacy on wave properties.* | *Communicate – construct an explanation on how a longitudinal wave travels through a medium*  *Analyse – compare the energy and speed of a sound wave via diagrams and descriptions in terms of the waves frequency or loudness (amplitude)* | ***Wavelength*** *– the distance between two crests of a wave or two identical points on a wave*  ***Rarefaction*** *– the point on a longitudinal wave where the vibrations are the furthest apart*  ***Compression*** *– the point on a wave where the vibrations of the wave are closest together* | *Retrieval questions*  *Simple exam questions*  *End of topic test*  *Summative assessment 3* | *Knowledge organiser (provided on Teams and in class)*  [*https://www.bbc.co.uk/bitesize/guides/z8d2mp3/revision/2*](https://www.bbc.co.uk/bitesize/guides/z8d2mp3/revision/2)  [*https://www.youtube.com/watch?v=gdGyvGPZ1G0*](https://www.youtube.com/watch?v=gdGyvGPZ1G0) |