Physics of Sound

KLAs: Science	LESSON TOPIC: Physics
YEAR LEVEL: K-10	DURATION OF ACTIVITY: 45-50 minutes

Where's that noise coming from?

Sound has a huge impact on our day-to-day lives. Just think of how much of our technology and communication involves sending or receiving sounds in various forms: talking on the phone, listening to music, yelling across the playground.

Students will be taken through a series of experiments to appreciate the various forms of waves, and how changes in frequency and amplitude influence how we perceive them. Understanding sound waves lays the foundation for understanding a wide variety of waves such as light waves, microwaves, mechanical waves, electromagnetic waves and X-rays.

SYLLABUS OUTCOMES

ES1 – S3: SCIENCE

- Knowledge and understanding – Physical World: ST1-6PW, ST2-7PW
- Skills – Working Scientifically: Ste-4WS, ST1-4WS, ST2-4WS, ST3-4WS

S4 – S5: SCIENCE

- Knowledge and understanding – Physical World: SC4-11PW, SC5-10PW
- Skills – Working Scientifically: SC4-4WS, SC4-7WS, SC5-4WS, SC5-7WS

LEARNING OUTCOMES

Students will:

- Observe the transfer of sound waves through different media: air, water, membranes
- Develop an understanding of different wave characteristics, including frequency, amplitude, wavelength and velocity
- Through experimentation, understand how changes in these wave characteristics influence our experience and perception of sound
- Learn about how sound is used in the animal kingdom for communication and survival

EXPLORATORY AND PLAY-BASED COMPONENTS

In this activity, students rotate around a series of interactive immersive activities that demonstrate and allow them to observe how soundwaves work: they will play with slinkies to illustrate transverse vs longitudinal waves; use tuning forks on various media to show the vibrational quality of sound radiating from its source; use frequency generators to demonstrate why some animals can hear sounds that humans can't; and play music with pipes to observe differences in pitch as wavelengths change.

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