

Washington Township School District

STEM/Makerspace Curriculum

Grade:	4	Mystery Science Unit/Project Title:	Waves of Sound
NJ Learning Standard(s):	4-PS4-1, 4-PS4-3		
Objective:	SWBAT: <ul style="list-style-type: none"> • Identify the different pitches and frequencies created by a vibrating ruler and a straw kazoo • Create high- and low-pitch sound waves • Hypothesize what happens to sound waves when they reach a solid, flat object 		
STEM/ Unit Activities	Pitch and Frequency		
Suggested Assessments:	<ul style="list-style-type: none"> • Exit Ticket • Journal for observations • Pitch It (see lesson attachment) • Kazoo Hullabaloo (see lesson attachment) 		
Supplies Needed:	<ul style="list-style-type: none"> • Ruler • Plastic drinking straw • Scissors For additional activity attached: <ul style="list-style-type: none"> • Drum • A few paper clips • Tuning fork • Basin of water • Rubber band strung between two pegs or nails • Metal fork and spoon • Steel yardstick or ruler • Musical instruments or a musical tape, record, or CD • A slinky • A set of glasses and a spoon for each group of students • Six copies of the Sound Waves Seen activity sheet for each student. 		

**Resources to
Support Unit:**

https://www.teachengineering.org/activities/view/cub_energy2_lesson05_activity3

https://www.teachengineering.org/content/cub_/activities/cub_energy2/cub_energy2_lesson05_activity3_instruments.pdf

https://www.teachengineering.org/content/cub_/activities/cub_energy2/cub_energy2_lesson05_activity3_worksheet.pdf

<http://school.discoveryeducation.com/lessonplans/worksheets/soundwaves/worksheet1.html>

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Grade:	4	Mystery Science Unit/Project Title:	Waves of Sound Mystery 2: What Would Happen If You Screamed in Outer Space?
NJ Learning Standard(s):	4-PS4-1, 4-PS4-a		
Objective:	SWBAT: <ul style="list-style-type: none"> • Explain that some materials absorb sound, while others reflect it • Design noise-absorbing headphones 		
STEM/ Unit Activities	Controlling Sound Activity: Designing Headphones		
Suggested Assessments:	<ul style="list-style-type: none"> • Planning Sheet • Exit Ticket 		
Supplies Needed:	<p>For activity demonstration:</p> <ul style="list-style-type: none"> • one pair of working headphones (the kind that covers the entire ear) • bells, small buzzer, CD player, or other noise-making items <p>Each group needs:</p> <ul style="list-style-type: none"> • various materials such as cloth, sponges, foam, cotton balls, cotton batting, small carpet samples, and any other materials that will absorb sound • something to hold the earpieces together, such as old headphones without the earpieces or a piece of material that will bend without breaking (vinyl strips from a mini-blind or inexpensive plastic headbands) • Dixie cups (work well as earpieces and can be stuffed with sound-absorbing materials) • rubber bands • duct tape • masking tape • scissors 		
Resources to Support Unit:	Headphone Planning Sheet https://www.teachengineering.org/activities/view/cub_soundandlight_lesson5_activity1		