

Unit Summary

	Cluster 1: Sound Is Vibration (Lessons 1 and 2)	Cluster 2: Sound Travels (Lessons 3-6)
Overview	Children describe sounds in the environment and try to identify their sources. They see and feel vibrations associated with several sound sources, and develop an awareness that sounds are made by vibrations.	Children establish that sound can travel through air and other materials and test a variety of materials to determine how well sound travels through them. They use cup-and-string telephones and a “pepper dance” activity to explore how sound travels. Children also assume the roles of various parts of the ear and participate in an enactment of how sound travels through the ear.
Science Content	<ul style="list-style-type: none"> • Sound originates from a source. • Sources all around us produce sounds. • Sounds are made by vibrations. • A vibration is a regular back and forth motion. 	<ul style="list-style-type: none"> • Sound vibrations travel through many things. • Sound vibrations travel through some things better than others. • Sound travels by causing vibrations in the air or other materials through which it passes. • The shape and parts of the ear allow sound to travel through it so that we can hear.
Science Center	<ul style="list-style-type: none"> • Generate sound using a variety of noisemakers, including ones they make from simple materials. • Play “Name That Sound” or “Guess the Vibration” using a variety of noisemakers. 	<ul style="list-style-type: none"> • Conduct variations of the “pepper dance” activity using glitter, rice, feathers, or other lightweight materials. • Continue to test and document differences in how well sound travels through various materials. • Experiment with spoon bells. • Discover ways to improve hearing.
Family Links	<ul style="list-style-type: none"> • Enlist families to help collect materials for the Sound Unit. • Ask for volunteers to visit the class to share musical instruments. 	<ul style="list-style-type: none"> • Conduct experiments in a bathtub or swimming pool to experience how sound vibrations travel through water.
Further Science Explorations	<ul style="list-style-type: none"> • Observe the ripples created by a vibrating tuning fork placed in water. 	<ul style="list-style-type: none"> • Experiment to deduce that sound travels in all directions. • Construct soundproof boxes. • Visit stairwells and gymnasiums to explore echoes. • Investigate the concept of sound waves using dominoes or other materials. • Create “party lines” with cup-and-string telephones. • Discover that two ears are better than one. • Investigate the ears and hearing of various animals. • Simulate hearing impairment and discuss the causes.
Cross-Curricular Extensions	<p>Language Arts: Write about the Sound Search. Categorize sound descriptors. Talk about onomatopoeias. Discuss the role of sound in communication. Read and write poems using rhymes and alliteration.</p> <p>Art: Explore TV and movie sound effects. Create sound effects. Capture vibrations on paper.</p> <p>Music: Explore the vibrations that produce sound in musical instruments.</p>	<p>Language Arts: Write, draw, or tell the story of a sound that goes from one end of a cup-and-string telephone to the other.</p> <p>Social Studies: Discuss the history of how the telephone was invented as a model invention story.</p>

Cluster 3: Changing Sounds (Lessons 7 and 8)	Cluster 4: Making Instruments (Lessons 9-12)	
<p>Children explore pitch and volume, and learn ways to vary them. They develop an ear for pitch and the vocabulary to describe differences in pitch and volume. They consider the relationship between pitch and the rate of sound vibrations, and the relationship between volume and the size of sound vibrations.</p>	<p>Children design and build musical instruments, paying special attention to what will vibrate to produce the sound and how the pitch and volume will be varied. They test, evaluate, and refine their instruments as they build. To culminate the project, children present and explain their instruments to the class.</p>	<p>Overview</p>
<ul style="list-style-type: none"> • Pitch is a characteristic of sound that describes how high or low a sound is. • Volume is a characteristic of sound that describes how loud or soft a sound is. • Differences in vibrations (rate and size) produce differences in sound (pitch and volume). 	<ul style="list-style-type: none"> • Musical instruments are based on creating vibrations that produce sound. • Musical instruments often include mechanisms that allow the pitch and volume to be changed. • String, percussion, and woodwinds are types of musical instruments. • Design, construction, evaluation, and revision are all elements of product development. 	<p>Science Content</p>
<ul style="list-style-type: none"> • Experiment with changing pitch and volume using a variety of instruments and materials. • Document interesting examples of high and low pitches and loud and soft volumes. 	<ul style="list-style-type: none"> • Observe and experiment with simple handmade instruments. • Explore raw materials for instrument-making. • Continue to design, test, and build instruments. 	<p>Science Center</p>
<ul style="list-style-type: none"> • Place a container of water on a stereo speaker and observe how the ripples in the water change as the volume of the stereo is adjusted. • Make instruments at home that can change pitch in various ways. 	<ul style="list-style-type: none"> • Request additional materials the children need to complete their musical instruments. 	<p>Family Links</p>
<ul style="list-style-type: none"> • Conduct additional activities to explore the relationship between pitch and rate of vibration. • Experiment with “paper ears” to improve sound perception. • Discuss the relationship between very loud sounds and ear damage. 	<ul style="list-style-type: none"> • Study instruments (or photographs of them) from other cultures. Relate the materials used to the available regional resources. 	<p>Further Science Explorations</p>
<p>Language Arts: Keep a “Sound Diary” for a day. Mathematics: Relate pitch to the size of instrument parts. Create a volume scale. Art: Make and decorate sound boxes. Music: Play a “Matching Pitches” game. Learn the musical scale to reinforce the range of pitches. Examine how pitch and volume are changed in musical instruments.</p>	<p>Language Arts: Research an inventor. Art: Decorate handmade musical instruments. Music: Watch videos or listen to recordings of innovative musicians.</p>	<p>Cross-Curricular Extensions</p>