

WEEK 1 Lesson 1

Science and Engineering: Making Sounds
Exploring Sound

S & E Big Ideas	Vibrating materials make sound. Sound makes materials vibrate.
S & E Guiding Question	What is sound?
Content Objective	I can conduct investigations and provide evidence that vibrating materials can make sound and that sound can make materials vibrate. (1-PS4-1)
Vocabulary	sound: something our ears hear through vibrations volume: how loud or soft a sound is
Materials and Preparation	<ul style="list-style-type: none"> ● plastic cups, small and large, one of each for each small group ● rubber bands of different sizes, stretched over the plastic cups This step could be done ahead of time or children can complete this step. ● chart paper and markers, one sheet per group <p>Children will work in small groups. If necessary, prepare these groups ahead of time</p>
Opening 5	<p>Ask the children to close or cover their eyes. If children are not comfortable with doing this, have the children face away. Make a sound (clap your hands, tap something, or ring a bell). Ask the children to open their eyes and tell a partner what they observed. Call on a few volunteers to share. <i>How did you know what made that sound?</i></p> <p>Gather the children and explain that sound is made through vibrations. <i>Sound waves enter the outer ear and travel through a narrow passageway called the ear canal, which leads to the eardrum. The eardrum vibrates from the incoming sound waves and sends these vibrations to three tiny bones in the middle ear.</i></p>

	Explain that today they will do an experiment with sound using cups and rubber bands.
Investigation 10 minutes	Place the children into groups. Children will make observations about the rubber band movement and the sounds that are made when the rubber band is plucked. Model for the children what plucking looks like, then have them pluck the rubber band on the small cup. Have them repeat this process with the large cup. Ask the children, <i>What did it look like when you plucked the rubber band?</i> <i>What did it sound like when you plucked the rubber band?</i> <i>Did the rubber band on the small cup make a different sound than the one of the large cup?</i> Children record the observations on chart paper.
Discussion 10 minutes	Conduct a Science Circle with the groups' chart papers. <ul style="list-style-type: none"> • <i>What did it look like when you plucked the rubber band?</i> • <i>What did it sound like when you plucked the rubber band?</i> • <i>Did the rubber band on the small cup make a different sound than the one of the large cup?</i>
Closing 5 minutes	Ask children what new evidence they have that supports the ideas below. <ul style="list-style-type: none"> • Vibration is a kind of motion. It is a fast back-and-forth motion. • Objects that vibrate make sounds. Sound always comes from a sound source (object) that is vibrating. • Objects can be made to vibrate in many different ways, including hitting, plucking, and dropping.
Standards	1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
Ongoing assessment	Check for understanding in the children's responses.

Notes

WEEK 2 Lesson 2

Science and Engineering: Hearing Sounds
Exploring Sound

S & E Big Ideas	Vibrating materials make sound. Sound makes materials vibrate.
S & E Guiding Question	What can we learn about sound using a tuning fork?
Content Objective	I can conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. (1-PS4-1)
Vocabulary	<p>high-pitched: having a high sound</p> <p>pitch: how high or low a sound is</p> <p>loud: a large sound that is easy to hear</p> <p>soft: a quiet sound that is difficult to hear</p> <p>sound receiver: something that detects sound</p> <p>tuning fork: a device that vibrates and makes sound when tapped</p> <p>volume: how loud or soft a sound is</p>
Materials and Preparation	<ul style="list-style-type: none"> ● Sound Video (https://www.youtube.com/watch?v=3-xKZKxXuu0&feature=youtu.be) ● chart paper and markers ● tuning forks, one for each group or one for a larger group demonstration ● bowl or large plastic cups, one for each group ● plastic wrap Wrap each bowl/cup with plastic wrap. The plastic wrap should be stretched tightly over the opening of the bowl/cup. ● paper plate one for each group ● candy sprinkles <p>Depending on the number of tuning forks available, the lesson should be conducted in whole group or small group.</p>

<p>Opening 10 minutes</p>	<p>Review the previous lesson’s discussions . Show the sound video. Explain to the children that today they will view/conduct another experiment that will show that sound is vibration. Show the children the tuning fork. Explain that a tuning fork is a device that produces a sound through vibration, when tapped. This is used to help turn instruments.</p>
<p>Investigation 10 minutes</p>	<p>If the lesson will be taught in small groups, invite children in their groups. Distribute one bowl or large plastic cup that has been covered tightly with plastic wrap. Place the bowl or cup on top of the paper plate. Go to each group and slightly press on the plastic wrap enough to cause a slight indentation. Shake some candy sprinkles into this spot. Have the children take turns striking the tuning fork to make it vibrate, then move it close to the plastic wrap with the sprinkles, without actually touching it. The vibration of the tuning fork will cause the sprinkles to move.</p>
<p>Discussion</p>	<p>Ask questions about the experiment:</p> <ul style="list-style-type: none"> ● What did you notice? ● What do you wonder? ● What caused the sprinkles to move?
<p>Closing</p>	<p>Collect observations by adding children’s statements to the chart paper.</p>
<p>Standards</p>	<p>1-PS4-1: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.</p>
<p>Ongoing assessment</p>	<p>Check for understanding in the children’s responses.</p>

Notes