

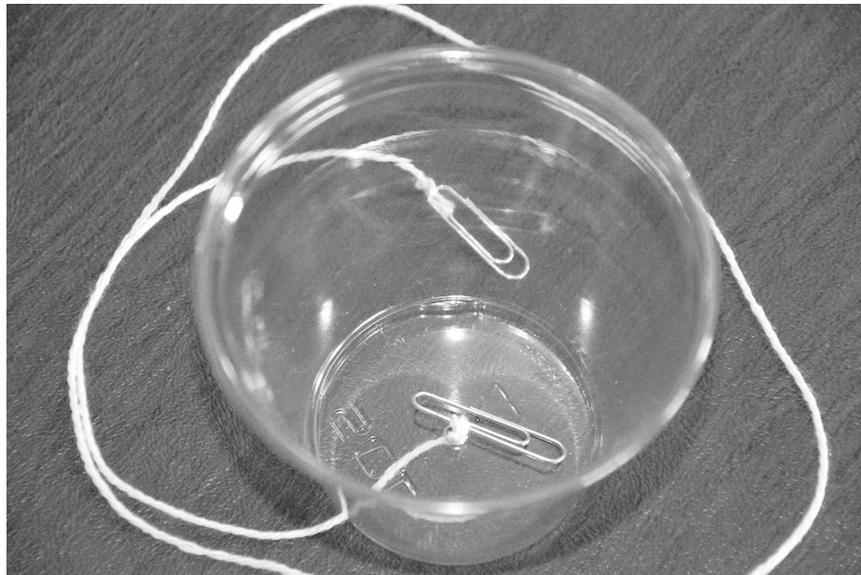
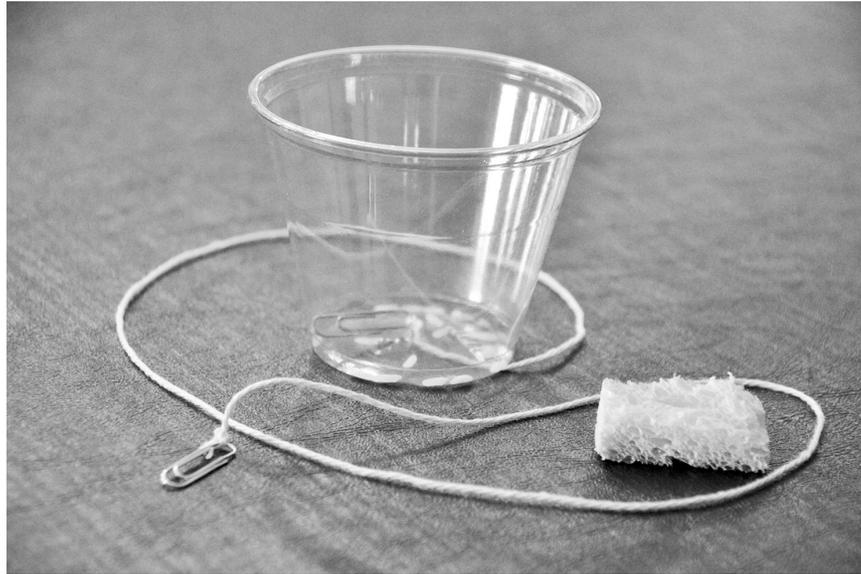
Sound

Lesson 1: Sound Makers

Grade 1	Length of lesson: 45 min	Placement of lesson in unit: 1 of 8 lessons on sound
Unit Central Questions: Why do we hear sound?		Lesson Focus Questions: How can you tell if something is making a sound?
Main learning goal: To produce sound, object must move back and forth quickly (vibrate).		
Science content storyline: In science, evidence is what you find out or understand that that helps you know something. For you to hear a sound, an object or material must vibrate. Vibrate means to move back and forth quickly. Often we can see the vibrations when an object is making a sound. We may also be able to feel the vibrations. Seeing and feeling vibrations as well as hearing sound are evidence that an object is making a sound.		
Ideal student response to the focus questions: Other than hearing the sound, you can tell that something is making a sound because it vibrates. You may be able to see and feel the vibrations.		

Preparation

<p>Materials needed:</p> <ul style="list-style-type: none"> • one clucker • rubber bands • small plastic containers • plastic 12” rulers • text book • 1.1 Handout: Sound Makers 	<p>AHEAD OF TIME: Review the Introduction and information about sound in the Content Background document.</p> <p>Assemble one clucker to use as a demonstration. You may use another sound maker but this one will get student’s interest and it is one you will use again.</p> <p>Clucker assembly: 1 clear Solo cup (9 oz) with hole in bottom 18” of string 2 small paperclips or toothpicks small piece of sponge</p> <p>Thread the string through the hole in the bottom of the cup. Tie a paperclip to both ends of the string to hold the string in the bottom of the cup. Let the string extend about 18” from the bottom of the cup. (see picture)</p>
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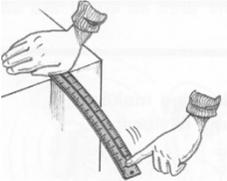
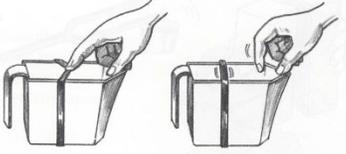
Lesson 1 General Outline

Time	Phase of lesson	How the Science Content Storyline Develops
5 min	Unit Central Questions: Teacher introduces Unit Central Questions and elicits student ideas about sound.	
8 min	Set up for Activity 1: Teacher introduces the focus question and elicits student ideas about how they can tell (what evidence they have) that something is making a sound.	In science, evidence is what you find out or understand that that helps you know something. There is evidence that an object produces a sound.
15 min	Activity 1: Students use two sound makers to gather evidence that the objects make sound. These sound makers have vibrations that are easy to see.	
10 min	Follow-up to Activity 1: Students return to the focus question and answer it by reporting their data from their investigation.	For you to hear a sound, an object or material must vibrate. Vibrate means to move back and forth quickly. Often we can see the vibrations when an object is making a sound. We may also be able to feel the vibrations. Seeing and feeling vibrations as well as hearing sound are evidence that an object is making a sound.
5 min	Synthesize/Summarize: Students answer the focus question by talking to a partner and in whole class discussion.	
2 min	Link to Next Lesson: Teacher forecasts the next lesson and asks students to consider if they think if what they learned today is true for all sound makers.	

Time	Phase of Lesson and How the Science Content Storyline develops	STeLLA Strategy	Teacher talk and questions	Anticipated student responses	Possible Probe/Challenge Questions
5 min	<p>Unit Central Questions: Why do we hear sound?</p> <p><u>Synopsis:</u> Teacher introduces Unit Central Questions and elicits student ideas about sound.</p>	Ask questions to elicit student ideas and predictions	<p>Today I want to show you a sound maker. <i>(hold up the cup and string clucker and make a sound with the clucker)</i></p> <p><i>Note to teacher: Make a sound with the clucker by pulling the sponge (it works better if it is slightly damp) down the string. The harder you squeeze the sponge and string the louder the sound will be. Students will use the clucker in the next lesson and in other lessons.</i></p> <p>We are going to be learning about sound for the next few days, but before we get into today’s lesson, I want to hear from you. What is sound?</p> <p>What are different ways we can describe sound?</p> <p><i>Note to teacher: Draw a Circle Thinking Map and write the word “Sound” in the middle. Then ask students for words about sound. They can use descriptor words too that describe sound. Add these words to the outer circle. Remember to accept all answers.</i></p> <p>Your job during these few days is to figure out why you hear sound. Our unit question that you need to answer by the</p>	<p>Noises. What you hear.</p> <p>Loud or soft Music Talking Yelling whistling Screechy Low or high</p>	

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		Ask questions to elicit student ideas and predictions	<p>end of all the lessons is: <i>Why do I hear sound?</i></p> <p><i>Note to teacher:</i> Write the Unit Central Question on the board and show it on the PowerPoint slide. Leave it up and visible for the duration of these lessons.</p> <p>Some of you may have ideas about why you hear sound. I will write your ideas on the board as you share why you think we hear sound.</p> <p><i>Note to teacher:</i> Record their ideas on the board or on chart paper. Title the list: “What I know: Why do we hear sound?”</p>	<p>Objects make sound.</p> <p>Sound comes out of things.</p> <p>Things crash into other things and make a sound.</p> <p>We hear sound because we have ears.</p>	<p>Can you say more about how objects make sound?</p> <p>Do you have an example in mind?</p> <p>Do you have any ideas about how our ears can hear sound?</p>
8 min	<p>Set up for Activity 1</p> <p><u>Synopsis:</u> Teacher introduces the focus question and the sound makers and elicits student ideas about how they can tell if something is making a sound.</p> <p><u>Main Science Ideas:</u> In science, evidence is what you find out or understand that that helps you know something.</p>	Set the purpose with a focus question.	<p>We want to add details to your ideas about why we hear sound. We want to know how the object makes the sound, how sound gets to our ears, and what our ears do to help us hear sound.</p> <p>So to start learning these details, I have another question for you—it is today’s focus question. <i>How can you tell if something is making a sound? (write this on the board or have it already written there as you show it on the Power Point.)</i></p>		

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		<p>Ask questions to elicit student ideas and predictions</p> <p>Make explicit links between science ideas and activities (before the activity)</p> <p>Ask questions to elicit student ideas and predictions</p>	<p>Does anyone have an idea for the answer to the focus question—How can you tell if something is making a sound?</p> <p>Hearing the sound is one way you know that something is making a sound. We call this evidence. <i>(write the word on the board or add it to the word wall. Have students repeat the word together and write it in their notebooks. Do this for each new vocabulary word introduced in the lesson. Show the PowerPoint slide about evidence.)</i></p> <p>Evidence is what you find out or understand that helps you know something. Like <i>hearing</i> sound is evidence that you know that something is making a sound. Have you ever heard of the word evidence before?</p> <p>So scientists are like detectives but instead of trying to find out who broke the law (committed a crime), they are trying to use evidence to figure out how the world works – like why we hear sound.</p> <p>Turn and talk to an elbow partner and agree on how you would define “evidence.”</p> <p>What if you couldn’t hear, is there other evidence that the object is making a sound? What do you think?</p>	<p>You can hear the sound.</p> <p>Yes like evidence is like fingerprints or DNA to find out who did something bad.</p> <p>Policemen or detectives look for evidence.</p> <p>Evidence is how I know something.</p> <p>Maybe I can feel it.</p> <p>The object will move.</p>	<p>Where did you learn that?</p> <p>How do you know?</p> <p>What would it feel like?</p> <p>What are other</p>

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		Make explicit links between science ideas and activities (before the activity)	That is what we will do today—look for evidence that something is making a sound.	I don't think you can tell unless you hear it.	ways you can tell if something is making a sound?
15 min	<p align="center">Activity 1</p> <p><u>Synopsis:</u> Students use two sound makers to gather evidence that the objects make sound. These sound makers have vibrations that are easy to see.</p> <p><u>Main Science Ideas:</u> When an object makes a sound you can hear it, see vibrations, or feel vibrations.</p>		<p>I am going to make a sound with these two new sound makers.</p> <p><i>Note to teacher: You will use two sound makers— a ruler with a book holding it in place and a container with a rubber band stretched across it.</i></p> <p><i>Use the book to hold the ruler as shown in the picture. Then press the end of the ruler down so that students can hear the sound from the ruler. Leaving the ruler extended 6-7 inches works well.</i></p>  <p><i>Hold the plastic container with one hand and pluck the rubber band with the other.</i></p>  <p><i>Note to teacher: Demonstrate again how to make a sound with each of the objects. Reinforce</i></p>		

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		<p>Make explicit links between science ideas and activities (during activity)</p>	<p><i>measurement skills by telling students to extend the ruler 6 inches beyond the edge of the table. Help them find the 6 inch mark by giving them hints such as “it is half way or in the middle of the ruler.</i></p> <p>You have a handout with the two sound systems pictured. Use your glue sticks to glue it into your notebooks. <i>(Show the handout from the PowerPoint slide.)</i></p> <p>The columns have an ear, an eye, and a hand. I’d like you to write down or draw and label the different ways, the <i>evidence</i>, you can record in your notebook that the sound maker is making a sound.</p> <p>If you collect the evidence with your ears (because you heard something) then write what you heard under the ear.</p> <p>If you see something the sound maker is doing when it is making a sound, write a word or draw a picture of what it was doing under the eye.</p> <p>If you feel something in the sound maker when it is making a sound, then write or draw what you feel under the hand.</p> <p>Try to find evidence from all three senses that the sound maker was making a sound. You want something in each column.</p>		

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			<p><u>Students in Pairs:</u> Let's start with the ruler and book. Everyone make a sound with the ruler and book. Take turns and both of you make a sound. Look for evidence that the ruler is making a sound. Don't write anything yet—we will do this first one together.</p> <p><i>Note to teacher: Give students some free time to make sounds with their sound maker. Each pair should have a sound maker and students should take turns using the sound maker.</i></p> <p><u>Whole group discussion:</u> Did you hear a sound?</p> <p>Someone describe what you heard.</p> <p>Was that evidence that the ruler was making a sound?</p> <p>What could you write or draw on your paper to record this?</p> <p>Where should we record this evidence?</p> <p>Write or draw this evidence under the ear because you heard it.</p> <p><i>Note to teacher: Continue this line of questioning for evidence that they saw and felt when they were making a sound with the ruler. Give students time to write</i></p>	<p>Yes</p> <p>It was weird. It went buzz. Yes, it was evidence.</p> <p>I could write the word buzz.</p> <p>On the handout.</p>	<p>What did the sound sound like?</p> <p>What do you mean by weird?</p> <p>Why do you say it is evidence?</p> <p>Where would you write it on the handout?</p>

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			<p><i>and/or draw in the appropriate cell on their handout. Model this by projecting a copy of the handout with the document camera.</i></p> <p><u>Working in pairs:</u> Now you will look for evidence of sound with the other sound maker—the container and rubber band. Use the sound maker to make sound and write words or draw and label pictures to describe what the sound maker is doing. Be sure to put your words or pictures in the correct column.</p> <p>You can use words or pictures (or both) to describe your evidence that the sound maker is making a sound.</p> <p>Note to teacher:</p> <ul style="list-style-type: none"> <i>a) Give students some free time to make sounds with their sound maker. Each pair should have a sound maker and students should take turns using the sound maker.</i> <i>b) As you move between groups of students ask them what evidence they are finding that a sound is being made. Ask them how they might draw what they see or feel. Encourage them to talk about what they saw and felt and heard in their teams</i> <i>c) Stop the students after a set amount of time to give them time to write their description words</i> 	<p>I can draw the rubber band wiggling.</p> <p>I can draw the container moving.</p> <p>I can write the word.</p>	<p>How would you draw that? Show me.</p> <p>What word would you write? Where should you write the word?</p>

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			<p><i>in the blank column of the handout. Encourage them to write their descriptive words or draw their pictures in the appropriate column of the handout.</i></p>		<p>Is this evidence that the rubber band is making a sound? How do you know?</p>
10 min	<p>Follow-up Activity 1</p> <p><u>Synopsis:</u> Students return to the focus question and answer it by reporting their data from their investigation.</p> <p><u>Main Science Ideas:</u> When an object makes a sound you can hear it, see vibrations, or feel vibrations.</p>	<p>Highlight key ideas and <u>focus question</u> throughout</p> <p>Engage students in communicating in scientific ways.</p>	<p><u>Whole group:</u></p> <p>Remember our focus question for today: <i>How can you tell if something is making a sound?</i></p> <p>Note to teacher: Project a blank copy of the handout so students can see you filling out the cells of the table.</p> <p>What evidence did you get from your <i>ears</i> for both sound makers?</p> <p>When you answer the question use the word evidence. You can say “My evidence for sound was _____”</p> <p>What evidence did you get from your <i>eyes</i> for both sound makers? When you answer the question use the word evidence. You can say “My evidence for sound was _____”</p> <p>What evidence did you get from your <i>hands (feeling or touch)</i> for both sound makers? When you answer the question use the</p>	<p>My evidence for sound was that I heard it.</p> <p>...it sounded bouncy.</p> <p>My evidence for sound was that I saw it wiggling. ...I saw it moving back and forth. ...I saw it vibrating.</p> <p>My evidence for sound was that it felt funny.</p>	<p>Please tell me more about the “bouncy” sound you heard.</p> <p>Can you show me how it was wiggling?</p> <p>What do you mean by vibrating?</p> <p>What do you mean it felt funny?</p>

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		Engage students in interpreting and reasoning about data and observations.	<p>word evidence. You can say “My evidence for sound was _____”</p> <p><i>Note to teacher: If some students don’t have evidence for feeling, have a student that does have that evidence come up and demonstrate.</i></p> <p>Look at the handout I have projected—you can look at your handout too. Do you see any evidence that is the same for both sound makers?</p> <p>In science, we call moving back and forth quickly—or wiggling like you describe, vibrating. The objects are vibrating. Can you say that word with me? Vibrating.</p> <p><i>Note to teacher: Write the word on the board or on your word wall. Show the PowerPoint slide about the word, vibrating.</i></p> <p>We will be talking more about objects vibrating in the lessons to come.</p>	<p>...it felt buzzy.</p> <p>They both made sound. They both wiggled. They both felt like they were moving.</p>	<p>Tell me more about feeling buzzy.</p> <p>Can you describe how they wiggled? How were they moving?</p>
5 min	<p>Synthesize/Summarize Today’s Lesson</p> <p><u>Synopsis:</u> Students answer the focus question by talking to a partner and in whole class discussion.</p>	Engage students in	<p>Today’s focus question was: <i>How can you know if something is making a sound?</i> What is your <i>evidence</i> that something is making a sound?</p> <p>Talk with your elbow partner and one person share one piece of evidence you</p>		

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	<p><u>Main Science Ideas:</u> When an object makes a sound you can hear it, see vibrations, and feel vibrations.</p>	<p>making connections by synthesizing and summarizing key ideas.</p> <p>Engage students in making connections by synthesizing and summarizing key ideas.</p> <p>Engage students in communicating in scientific ways.</p>	<p>wrote or drew in your notebook about how you knew that our two sound makers were making a sound. Then the other person add at least one other idea that provides evidence so you know that the object is making a sound.</p> <p>When you begin to share with your partner, say “My evidence of sound is that_____” (<i>Show the PowerPoint slide with the sentence starter.</i>)</p> <p><i>Note to teacher: Allow students a few minutes to talk about how they know an object is making a sound. Listen for students correctly describing the evidence as seeing or feeling vibrations when an object makes a sound. Follow up their conversations with a group discussion.</i></p> <p>Can someone share with me one way you know an object is making a sound?</p> <p>Let’s start our sentences with “My evidence is that_____”</p> <p>Can someone tell me a different way they know?</p>	<p>My evidence is that I hear the sound.</p> <p>My evidence is that I see the sound.</p> <p>My evidence is that I see vibrations.</p> <p>My evidence is that I feel vibrations.</p>	<p>What do you see that is evidence for sound?</p> <p>What do you feel that is evidence for sound?</p>
2 min	<p>Link to Next Lesson</p> <p><u>Synopsis:</u> Teacher forecasts the next lesson and asks students to consider if they think if what they learned today is</p>	<p>Link science ideas to other science ideas (future lessons).</p>	<p>We looked at two sound makers today. Tomorrow we are going to look at some more sound makers—and one of them is YOU!</p> <p>Do you think that what you learned today is true for all sound makers, even when</p>	<p>I don’t think we vibrate!</p>	<p>Why do you think that?</p>

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	true for all sound makers.		<p>the sound maker is you?</p> <p><i>Note to teacher: Allow students to get out their ideas. Probe their ideas but don't challenge them at this point. You will have opportunity to challenge during the next lesson.</i></p>	<p>Yes. No.</p>	<p>How do you know that?</p>