

# Gr. 2 – Understanding Matter and Energy

## *Properties of Solids and Liquids*

### Super Listener Earphones

<b>Specific Expectations:</b>  2.1 Follow established safety procedures during science and technology investigations.  2.2 Investigate the properties of liquids and solids.  2.7 Use a variety of forms to communicate with different audiences and for a variety of purposes.  3.2 Describe the properties of solids and liquids.			
<b>Big Idea (for lesson):</b> Students investigate sound through everyday objects, and build a makeshift stethoscope to explore sound in liquids and solids.			
<b>Accommodations:</b> <input checked="" type="checkbox"/> Increase time <input checked="" type="checkbox"/> Visual Aids <input checked="" type="checkbox"/> Manipulatives <input checked="" type="checkbox"/> Chunking <input checked="" type="checkbox"/> Step-by-Step <input type="checkbox"/> Scaffolding <input checked="" type="checkbox"/> Copy of Notes <input checked="" type="checkbox"/> Student Grouping	<b>Differentiated Instruction:</b> <input checked="" type="checkbox"/> Content: Use demo to show the content as you offer verbal descriptions. <input checked="" type="checkbox"/> Process: Have students work in pairs and support each other if physical impediments exist. <input checked="" type="checkbox"/> Product: Students may submit their final product in pairs, and communicate their findings either verbally, visually, or through written means. <input type="checkbox"/> Other: _____		
<b>Bloom's Taxonomy:</b> <input checked="" type="checkbox"/> Knowledge <input checked="" type="checkbox"/> Comprehension <input checked="" type="checkbox"/> Application <input checked="" type="checkbox"/> Analysis <input type="checkbox"/> Synthesis <input type="checkbox"/> Evaluation	<b>Multiple Intelligence:</b> <input checked="" type="checkbox"/> Verbal/Linguistic <input checked="" type="checkbox"/> Logical/Mathematical <input checked="" type="checkbox"/> Visual/Spatial <input checked="" type="checkbox"/> Bodily/Kinesthetic <input checked="" type="checkbox"/> Naturalist <input checked="" type="checkbox"/> Musical/Rhythmic <input checked="" type="checkbox"/> Interpersonal <input checked="" type="checkbox"/> Intrapersonal		

### Delivering The Lesson:

Portion & Timing	Grouping:			Introduction:	Materials
<b>Minds On:</b> <b>5 mins</b>	W <input checked="" type="checkbox"/>	S <input type="checkbox"/>	I <input type="checkbox"/>	Teacher begins by asking students how doctors can tell if certain organs (ie. the heart or the	-Thunder tube

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				<p>lungs) are working correctly? (<i>Answer: eventually prompt them towards the idea of “listening” for abnormal sounds in the body.</i>)</p> <p>-How are sounds produced? (<i>If no one answers something along the lines of “vibrations”, proceed straight to the demo anyways.</i>)</p> <p>Teacher does a Predict, Observe, Explain demo with students showing how sound is made. Ask students to predict what will happen when you shake the thunder tube around?</p> <p>-Shake the Thunder Tube around, producing a loud sound.</p> <p>Ask students the following questions:</p> <p>-Why did that happen? (<i>Answer: The coil vibrated, sending sound up and out of the tube.</i>)</p> <p>-Based on your observations, what needs to happen for sound to be produced? (<i>Answer: there must be some sort of disturbance or vibration.</i>)</p>	<p>Can be built (<a href="http://www.instructionables.com/id/Thunder-Maker/">http://www.instructionables.com/id/Thunder-Maker/</a>) or bought (<a href="http://www.stevespanglerscience.com/thunder-tube.html">http://www.stevespanglerscience.com/thunder-tube.html</a>)</p>
<p><b>Action:</b> <b>30 mins</b></p>	<p>W <input checked="" type="checkbox"/></p>	<p>S <input checked="" type="checkbox"/></p>	<p>I <input checked="" type="checkbox"/></p>	<p>Have students build their own “stethoscopes” according to the instructions on the handout. The teacher has them do a whole-class sound activity to show that sound actually travels faster in solids than liquids, and liquids faster than gases.</p> <p><b>Note:</b> The password can be substituted with a high-five for the in-class movement activity.</p> <p>They then listen to solid and liquid objects as a partner taps them, following the directions of the handout. The teacher can ask which was louder, listening through air or the solid/liquid. They can also ask about the clarity of the sound.</p>	<p>-Super Listener Earphones Handout (Materials listed)</p>
<p><b>Consolidate:</b> <b>5 mins</b></p>	<p>W <input checked="" type="checkbox"/></p>	<p>S <input type="checkbox"/></p>	<p>I <input type="checkbox"/></p>	<p>Teacher brings the class back together to ask a couple of closing questions about sound and solids/liquids:</p> <p>-What do the particles in solids look like? (<i>Answer: they are tightly packed together, with not much space in between.</i>)</p> <p>-What do the particles look like in liquids?</p>	

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			<p><i>(Answer: they aren't as close as in solids, but closer than gases which are quite spread apart.)</i></p> <p><i>-Where does sound come from? (Answer: vibrations/taps/disturbances)</i></p> <p><i>-Why does it move faster in solids? (Answer: because in solids the particles are closer and vibrate to pass on a sound wave more quickly.)</i></p>	
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