

# Sound Program of Study Standards

This document is part of an  
Inquiry-based Science Curriculum from  
The *Guided Inquiry supporting Multiple Literacies* Project  
at the *University of Michigan*

## Project Co-Directors:

Annemarie Sullivan Palincsar, Ph.D.  
*Literacy and Special Education*

Shirley Magnusson, Ph.D.  
*Science Education*

This project was supported by the following funders:



### National Science Foundation

Opinions expressed are those of the authors  
and not necessarily those of the Foundation



### Center for the Improvement of Early Reading Achievement

The study described herein was funded under the Educational Research and Development Centers Program, PR/Award Number R305R70004, as administered by the Office of Educational Research and Improvement, U.S. Department of Education. However, the contents of the described report do not necessarily represent the positions or policies of the National Institute on Student Achievement, Curriculum, and Assessment; the National Institute on Early Childhood Development; or the U.S. Department of Education. You should not assume endorsement by the Federal government.

## SOUND Program of Study

### Selected Standards and Benchmarks Table

<b>Standard</b>	<b>Grade K-2 Benchmarks</b>	<b>Grade 3-5 Benchmarks</b>	<b>Grades 6-8 Benchmarks</b>
<b>U.S. National Science Standard 12: Understands motion and the principles that explain it</b>	<ul style="list-style-type: none"> <li>Knows that vibrating objects produce sound</li> </ul>	<ul style="list-style-type: none"> <li>Knows that the pitch of a sound depends on the frequency of the vibration producing it.</li> </ul>	
<b>Michigan Standards, Science Waves and Vibrations</b>  <i>All students will describe sounds and sound waves:</i>	<ul style="list-style-type: none"> <li>Describe sounds in terms of their properties.  <i>Key concepts:</i> Properties: pitch high, low. Loudness loud, soft.  <i>Real-world contexts:</i> Sound from common sources, such as musical instruments, radio, television, animal sounds, thunder, human voices.</li> <li>Explain how sounds are made.  <i>Key concepts:</i> Vibrations fast, slow, large, small.  <i>Real-world contexts:</i> Sounds from common sources, such as musical instruments, radio, television, animal sounds, thunder, human voices.</li> </ul>		
<b>U.K. National Curriculum Physical Processes Strand, Summary of Objectives for Key Stages for: Sound and Hearing</b>	<ul style="list-style-type: none"> <li>Knows that there are many kinds of sources of sound</li> </ul>	<ul style="list-style-type: none"> <li>Knows that sounds are made when objects [<i>for example, strings on musical instruments</i>] vibrate but that vibrations are not always directly visible</li> <li>Knows how to change the pitch and loudness of sounds produced by some vibrating objects [<i>for example, a drum skin, a plucked string</i>]</li> <li>Knows that vibrations from sound sources require a medium [<i>for example, metal, wood, glass, air</i>] through which to travel to the ear.</li> </ul>	<ul style="list-style-type: none"> <li>Knows the relationship between the pitch of a sound and the frequency of the vibration causing it.</li> </ul>
<i>Compilations, based partially on U.K. &amp; U.S. standards</i>	<ul style="list-style-type: none"> <li>Knows that the vocal chords are one example of a source of sound.</li> </ul>	<ul style="list-style-type: none"> <li>Knows that sounds are heard when they are received at the ear, enter the ear canal and vibrate the ear drum.</li> </ul>	