



Curriculum Units by Fellows of the Yale-New Haven Teachers Institute
2000 Volume V: Sound and Sensibility: Acoustics in Architecture, Music, and the Environment

The Science of Sound and Musical Instruments

Guide for Curriculum Unit 00.05.05

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The curriculum unit, "The Science of Sound and Musical Instruments" can be used with students in grades 4-7 with minor adaptations. This unit is one portion of three other units written to discuss the how sound and instruments influence culture. This unit will serve as the science behind sound and will discuss how the instruments introduced in the other units make music or sound.

The paper will be divided into three different sections. Section I, The Structure of the Ear, will focus on how we hear and perceive music. The students will be introduced to each part of the ear and discover how they all work together in order to hear sounds. Section II, The Components of Sound, will introduce students to the concepts which allow sound to occur. They will also discover the role each of these components in producing sound through basic experiments found in the lesson plans at the end of the unit. Section III, How Musical Instruments Create Sound, will explain how the different types instruments mention in the units written by Doreen Canzanella, Judith Dixon and Jackie Porter units create sound.

Upon completion of the unit, the students will be able to:

- (1) Identify the components of sound.
- (2) Describe the relationship between pitch and frequency.
- (3) Explain the terms sympathetic vibrations and resonance.
- (4) Perform simple experiments about sound.
- (5) List the three sections of the ear and the structures associated with each area.
- (6) Explain how musical instruments create sound.

(Recommended for Science, grades 4-6.)

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