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# Seeing and Learning Astronomy and Cosmology Through the Lens of Music

Guide for Curriculum Unit 96.06.13
by Sloan Edward Williams Iii

The teaching of music in combination with astronomy and cosmology has been connected throughout history. There might be cause to bring these disciplines together again through Outstanding Problems in Contemporary Astronomy and Cosmology.

When setting the stage for new ways of exploring music, astronomy and cosmology, I start with the historical roots; the Pythagoreans in particular contributed profoundly to the development of Western Music by discovering two facts: first, that the sound caused by the string depends on the length of the string; second, that harmonious sounds are given off by strings whose lengths are related to each other as ratios of whole numbers. Pythagorean astronomy also thought that bodies moving through space produced sounds and were all harmonized, 'music of the spheres'. In the 16th Century, the revival of Greek culture paved the way for Copernicus, Kepler, Galileo and Newton to develop the laws of planetary motion.

This unit also makes reference to tools such as the oscilloscope which assist in the teaching of the understanding of waves. This unit is best used with high school level students.

(Recommended for Music, Math, Science and Cosmology, grades 9-12)