Music and Physics

INTRODUCTION  Laser Music

SOUND WAVES:
Air Wave Model: Slinky; Longitudinal Waves
Water Wave Model: Spring; Transverse Waves
Singing Rod: Which is it?

HELIUM BALLOONS
Sound affect by medium

GUITAR: SOUND TO MUSIC
Vibrating String; and spring model

SINGING TUBE:
Singing Tube Arpeggio
Vacuum Effect
Bernoulli Effect w/ paper

TRUMPET:
Harmonic Tone Series
Model Discrete Frequencies
Scales and Harmonic Series:
High & Low notes
Piccolo & E-flat comparison

EQUIPMENT:
Laser Setup
Slinky
Spring or Rope
Tuning Forks
Singing Tube
Singing Rod & Rosin
He Balloons

TIMBRE* OF INSTRUMENTS:
*Pronounced like timber, but means different
Harmonic Fingerprint
Trumpet vs. Clarinet
Computer Timbres

INTERFERENCE
Octave, 5th, 4th, 2nd, ...
Tuning Forks
Visual Analog: Same or Different?
Beats, & Computer Beats
Doppler Effect; how to measure $\omega \Delta f$

NAME THAT TUNE:
Bugle Calls
Wm Tell Overture. Composer? (Not Tonto)
Star Spangled Banner
In The Mood
Woody Woodpecker or Malcom Arnold Quintet
Handel Fireworks or Mozart Concerto

FINALE:  Star Wars Tape