

WAVES

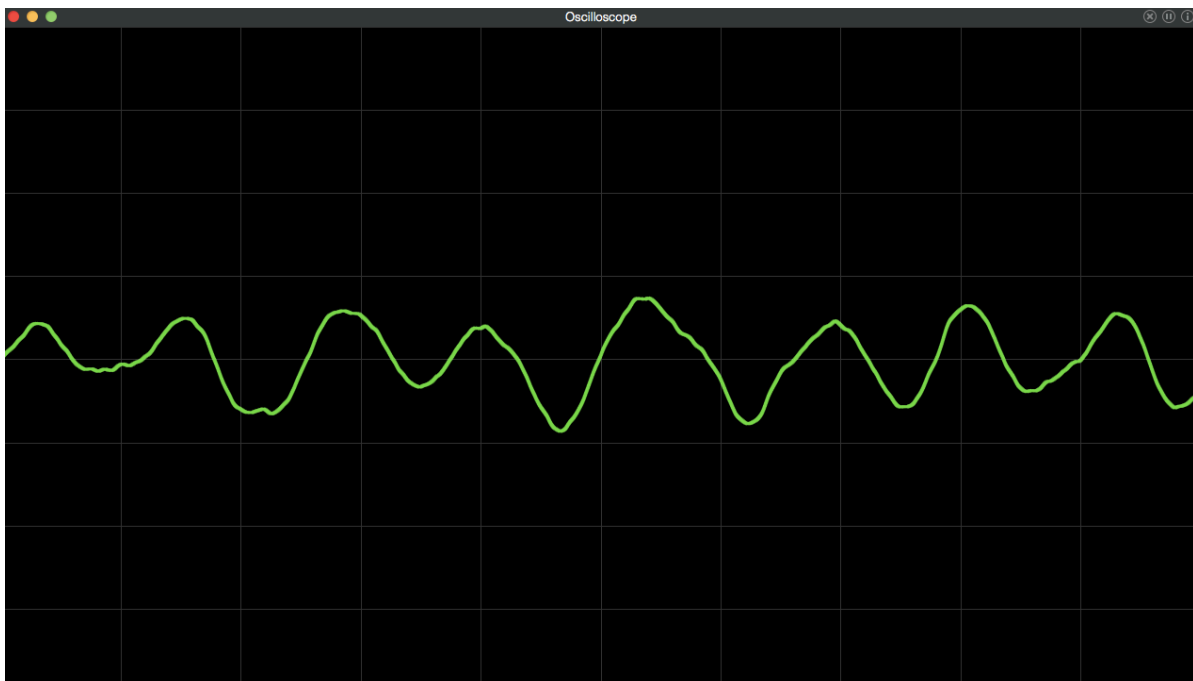
An Interactive Presentation and Performance
Exploring the Science Behind Sound
with Third Coast Percussion (TCP)



Students from South Bend-area middle schools participate in the world premiere of WAVES at the University of Notre Dame.

GOALS

- Students learn about the scientific and musical properties of sound waves.
- Students participate in interactive activities using app-based technology (including oscilloscopes and spectrum analyzers) to visualize the learning objectives.
- All students participate in an interactive musical performance with members of TCP, reinforcing the learning objectives on percussion instruments custom-designed for this project.



This screenshot shows a sound wave, as it would be displayed on an oscilloscope during the WAVES presentation.

PRESENTATION

- Performances by TCP are interspersed with teaching moments that connect scientific and musical concepts including:
 - Amplitude and dynamics (how loud a sound is, and how tall or short a sound wave appears on an oscilloscope)
 - Frequency and pitch (how low or high a sound is, and how many peaks and troughs of a wave appear on an oscilloscope)
 - Noise vs. pitch (visualized on an oscilloscope)
 - Musical timbre and the sonic spectrum (a spectrum analyzer is used to show the frequencies and overtones that make the same note sound different on different musical instruments)



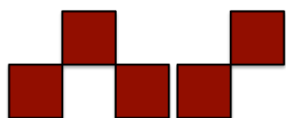
A photo from the premiere of WAVES at the University of Notre Dame's DeBartolo Performing Arts Center, May 2014.

PERFORMANCE

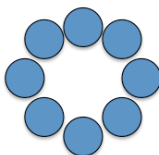
- No prior musical experience is necessary for students to participate in the musical performance of WAVES.
- Every audience member receives a percussion instrument custom-designed for this project to reinforce the concepts taught in the presentation.
- Students are taught how to play simple musical patterns, and a series of simple symbols are displayed on screen to help guide the audience through the performance with TCP.
- A member of TCP teaches everything necessary to perform the piece during this presentation, and leads the performance from the stage.

ndWaves

LOG



CHIME



WHISTLE



Above is a sample of the musical score that is projected on screen to help guide the students through the performance of WAVES.

AUDIENCE

- WAVES is ideal for audiences ranging in age from **3rd grade to 6th grade** (9 years old to 12 years old).
- WAVES is also well suited for all-ages family audiences, where young children have adult supervision.
- **Ideal audience size is between 60-125.** Audiences may not exceed 200. Two performances can take place in one day, or possibly more upon request.
- One teacher or volunteer is needed for every 15 students, to supervise and assist in passing out percussion instruments to students in a safe and expedient manner.



The audience (and performers!) at the Bravo! Vail Music Festival in Colorado, July 2014.

“For too many kids in school, STEM education (science, technology, engineering & math) is like a green vegetable - it’s good for you, but you don’t have to like it - while the arts are dessert - you might like it, but you don’t need it.”

-Professor Jay Brockman, Associate Dean
College of Engineering, University of Notre Dame

Watch a brief video with footage from the world premiere of WAVES by clicking [here](#), or access the link below in your web browser.

<https://www.youtube.com/watch?v=AnGMITDpZQw>

TECHNICAL RIDER FOR Third Coast Percussion - "Waves" Educational Program

PRESENTER PROVIDES:

- Mains: High-quality stereo system with sufficient power for amplification of quartet at medium to high volume
- HD projector and video screen (back projected screen preferred)
- Ability to connect to projector through VGA cable
- Microphones: handheld talk back microphone (amplification of ensemble preferred...see input list)
- Microphone Stands: 11 tall boom stands, 1 straight stand
- Power plug-in source for laptop computer on stage
- Monitors: None
- HD projector and video screen (back projected screen preferred)
- 10 Music Stands, 3 chairs
- Backline Instruments:
 - two 4.3 marimbas
 - vibraphone
 - concert bass drum with stand
 - snare drum with concert height stand
 - 8 tom-toms
 - 2 China cymbals
 - tam-tam with stand
 - two tubular chimes (pitched A & E)
 - 3 boom stands
 - 4 double tom-tom stands
 - 2 bows
 - 5 tables or trap tables with "X" stands

EVENT CONTENT:

- 30' of interactive presentation and performance by Third Coast Percussion
- 25' of group rehearsal with participants
- Roughly 5' of final performance

Maximum Run Time: 1 hour

Pieces to include:

CONDON *Fractalia* (5')
THOMAS *Resounding Earth, Mvt. II* (8')
MARTIN *Waves* (5')

SOUND REINFORCEMENT:

This interactive concert program can be performed acoustically or with sound reinforcement for instruments. Decisions about sound reinforcement should be made based on the performance venue and in consultation with the ensemble. Please contact Sean Connors (sean@thirdcoastpercussion.com) with any questions. Regardless of this decision,

Microphones listed below are suggestions based on our previous work with sound engineers. The venue's sound engineer may suggest substitutions if these microphones are not available or appropriate for the venue's acoustic. Where there is no suggested microphone please choose a suitable microphone. See attached stage plot for microphone placement.

MAIN CONSOLE INPUT:

Input	Instrument	Mic Type	Mic Stand
1	Marimba high	Schoeps MK21g or similar	Tall Boom
2	Marimba low	Schoeps MK21g or similar	Tall Boom
3	Marimba high	Schoeps MK21g or similar	Tall Boom
4	Marimba low	Schoeps MK21g or similar	Tall Boom
5	Vibraphone	Neuman KM 184 or similar	Tall Boom
6	Drums and Tubular Chimes	Shure KSM32 or similar	Tall Boom
7	Overhead 1 (small toys)	Shure KSM 32 or similar	Tall Boom
8	Tam-Tam	Sennheiser MD421 or similar	Tall Boom
9	Bass Drum	Sennheiser MD421 or similar	Tall Boom
10	Temple Bowls	Shure KSM 32 or similar	Tall Boom
11	Temple Bowls	Shure KSM 32 or similar	Tall Boom
12	Speaking Mic	Wireless Talkback	

SCHEDULE:

Below is a proposed schedule for the day of performance:

- 10:00 AM - 1:00 PM load-in, set-up, sound check
- 1:00 PM - 2:00 PM meal break
- 2:30 PM doors open
- 3:00 PM concert

ADDITIONAL PRODUCTION NOTES

- AUDIENCE SIZE:

- Ideally 60-125, maximum 200 students / participants
- Total number will require this many instruments provided by Third Coast Percussion to be passed out to audience members (includes instruments for adults)

Shakers = Total # of Students x 1.1
 Whistles = Total # of Students x .22
 Log Drums = Total # of Students x .44
 First pipe set = Total # of Students x .22
 Second pipe set = Total # of Students x .22
 Single Sided Mallets = Total # of students x .44
 Double Sided Mallets = Total # of students x .44

- STAFFING REQUIREMENTS:

- 1 adult in audience or on staff per every 10 children (teacher, parent, usher, college student, intern, etc.)
- duties include:
 - passing out workbooks and writing utensils
 - passing out instruments and mallets
 - helping to show students playing vs. resting position

acting as group leaders for students (will play along)

- Assembly of audience participation instruments will take a little less than one hour. Please provide staff member(s) to help in the assembly of these instruments which Third Coast will pre-ship to the venue prior to the event
- This presentation involves the optional inclusion of workbooks geared toward younger audience members. If the venue wishes to include this aspect in the presentation, please be prepared to print out enough workbooks from a .pdf file sent from Third Coast Percussion prior to the event. Venue will also provide 1 writing utensil per workbook.
- The performers will not move instruments during the first half; microphones can stay set until intermission.
- If at all possible, please provide a load-in route without steps or stairs between load in site and performance venue. Large freight are elevators preferred, or elevators where the door can be held without an alarm sounding.
- Please provide as many carts, dollies, or flat-bed hand trucks as possible for load-in and load-out

HOSPITALITY:

- Internet Access (if available at venue)
 - If possible, please arrange access to venue wireless network for 5 performers (Glenn Kotche, plus 4 members of Third Coast Percussion)
- Green Room
 - VENUE/PRESENTER will provide Green Room, Dressing Room, or other area for TCP to change clothes, relax and store their personal belongings.
- Catering
 - Load in and Sound Check: Coffee with cream and sugar, bottled water. Fresh fruit, crackers.
 - Lunch: Sandwiches, salad, light snacks, etc.
 - and sugar, bottled water.