fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

Band Geeks and Science Nerds:
Taking Chamber Music from the Stage to the Classroom

I: THE PHYSICS OF MUSIC

DEMO - Intro from *The Physics Of Music*

Begin with musicians facing away from each other, Melissa taps her foot for 2 bars (loudly), everyone starts together.

Play Bartok: Maruntel

Crystal enters clapping from side stage and takes mic: Good afternoon! How are you doing today? Great! So…I have a question for you. How did the musicians stay together if they weren't looking at each other? Yes, Melissa tapped her foot…that was to help them get started. But once they were playing, do you know how they stayed together? I'll give you a hint, and it has to do with what we'll be exploring today. There was a force that was keeping them together. What's the part of music that keeps your toes tapping or makes you want to dance? Yes, the beat or pulse of the music. There's also a force here on Earth that keeps us all from floating away…do you know what that is? Gravity!

Arts Integration Overview

- Introduction to 5HE's arts integration programs – teaching core curricular subjects through chamber music programs and residencies
- Why is arts integration important, and how does it support academic and music instruction?
- Supports diversity in learning in academic classrooms
- Engages at-risk students via an unexpected teaching format
- Engaging student musicians in arts integration provides them with a new context for their artistic work
- Allows music students to more clearly understand their role within the ensemble, how to communicate with other players, and how to communicate with an audience who may not have a musical background
- Introduce the three programs discussed today – Heartbeat, Physics, Ecosystems

DEMO: Jumprope Activity from The Physics Of Music

Melissa: At this point in the Physics program, we've learned that music has a gravitational force, or beat, that holds it together, and that music can be played at several different speeds, the word for that being Tempo! But do you think the tempo always has to stay the same within a piece of music? Well, do things around us always move at the same, or constant, speed? No! Think of riding your bike up and down a big hill. When pushing your way up the hill you will tend to slow down. Does anyone know the scientific word for that? Deceleration! And once you have finally made it to the top and you start to go downhill, gravity takes over and you pick up speed. Does anyone know the scientific word for that? Acceleration! Great!

In music, we can also speed up or slow down. We think it makes the music more interesting! The musical word we use for speeding up is accelerando. Say that with me. For slowing down we use rallentando. Can everyone say that?

In our final activity, we're going to ask for one more volunteer and have them work with me to twirl a jump rope to show accelerando and rallentando by speeding up and slowing down how they twirl, and my friends will try to follow them. After the musicians have tried to follow the jump rope, you ALL will try to follow along with the pattern as we speed up and slow down by clapping you hands along with the rope when it hits the ground!

Select one volunteer.

Here's the rope. I want you to start slowly, and I need everyone to be very quiet so the musicians can hear the beat of the jump rope. Then as they play, you can speed up and slow down (but keep in mind that you have to work together!). The musicians will then speed up (what's that called?) and slow down (and that?) with the beat of the jump rope.

Melissa helps get the volunteer twirling.

***Play Gossec Gavotte** with all repeats, first section only follow the beat of the rope. (one rotation per measure—in 1)*

Melissa: Great job twirlers! I think the musicians did an excellent job! Now it's your turn…do you think you can follow along? Everyone clap along!

*Musicians **play Gavotte** again, Melissa and volunteer turn the rope*

II: THE HEARTBEAT OF MUSIC

- Similar musical concepts can be used to teach different academic subjects. In this case, we use the concepts of pulse and tempo to relate to the circulatory system in the body.

DEMO: *The Heartbeat of Music: Music and the Circulatory System*

Today we're going to explore how music is like the circulatory system in our bodies! What are some parts of our circulatory system? I'll give you a hint—it's what we just said keeps the beat. (the heart!) We're going to see how the beat in music, also called the pulse, is like our own heartbeat or pulse, that just like us, music "breathes," and just like in our bodies, all the different parts of music work together to keep the music alive.

Before we start our first activity, I want everyone to find his or her pulse. (Demo fingers on neck or wrist.) I would like two (or three) volunteers who could really feel their pulse. Now, Crystal is going to time us while we all count our pulse beats. (Crystal times for 10 seconds, gets number from kids, picks one that's closest to 12—for tempo of Air—then multiplies by 6 to get heart rate.) This number is our "resting pulse," and it's going to be our tempo for the first piece of music. Karl is going to show us what that tempo (or pulse—which is beats per minute), sounds like on the metronome. (Karl clicks off the tempo.)

Crystal: Now, my friends are going to play a piece by Bach called Air, and I want my volunteers to march in place with me to the beat of the music. While they're playing, I want you (audience) to predict what will happen to our (marchers') pulse. Let's take a vote: UP? DOWN? STAY THE SAME? Let's find out…

Play Air on a G String

Crystal: Now take your pulses again. Not much change, right? Next, we're going to play another song at a very different tempo, and I want you to move with that beat or pulse.

Play Rossini's Gallop

Crystal: Now take your pulse! That was a lot faster, right? Just like when you exercise or play sports, when we play fast, energetic or exciting music, the pulse speeds up. Thank you volunteers! You can have a seat.

Full Audience Activity – The Musical Body

- At the end of every one-shot performance, we like to include an activity for the entire audience to participate

Karl: For our last activity, we're going to see how music can be re-circulated, so that the same parts come back, just like our blood cells come back, get charged up again with oxygen, and pump to other parts of our bodies. And we're going to see how everything works together: the pulse, the melody, and us, the players (we're kind of like the breath that provides the oxygen, or energy, to the music).

First, we need a heart. All the folks on THIS side, when I start you, you're going to clap on your knees to keep our pulse. Then I need the lungs. All the folks on THIS side, you're going to go SWISH-SWISH (audible inhale-exhale) in time with the heart. Finally, I need the blood cells! All the folks in the MIDDLE, you're going to keep track of where the blood cells (or the melody) travels…so if Melissa has it, you put this hand up. If Adam, both hands, if Crystal, this hand. (Karl will assist)

*Do you think you can put it all together? **Play Shepherd's Hey***

fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

III: MUSICAL OCEAN ECOSYSTEMS

- Was designed as a full 10-week residency, but can be adapted into a 45-minute lesson or show

Skills learned:

- Active listening, musical terms – forte, piano, adagio, allegro, staccato, legato.
- Understand how a chamber ensemble functions – roles of melody and accompaniment, and how each musician interacts
- Ability to link these concepts to the way an ocean ecosystem functions

DEMO: Musical Laboratory Lesson

- Students will make predictions about what variables in music have the most effect, test their hypotheses, and try to make predictions/connections about what variables in an ecosystem might have similar consequences

Adam: Today we're going to explore how parts of an ensemble work together and see if that's similar to parts of an ecosystem. Let's start with a well-functioning music group, and pretend that it's an ecosystem in perfect balance. First, let's review what is in every ecosystem: it's made up of all living and non-living things in a given environment. What does that include? What about in a musical ecosystem? (Hint: what instruments do we have playing right now?) Ok. Let's listen to the music.

Play de Falla Ritual Fire Dance

Adam: Now let's see what happens if we start removing instruments from our "musical ecosystem." Let's form our first hypothesis: which instrument do you think is the most important? Let's test it out.

One player drops out.

Adam: How did the instruments work together? What happened when one wasn't playing? Let's try it with the others. (discuss results) So you can see how the parts of music are intertwined just like parts of an ecosystem. What else can we have the instruments do that might change the balance of the ensemble?

- *One play much faster or slower*
- *Louder/softer each part - balance*
- *Top two voices switch parts*
- *One musician plays something else - Karl plays Pachelbel's Canon*
- *Any others that the audience can come up with*

Adam: What do you think all those musical variables might represent in an ecosystem? What factors influence how an ecosystem functions? So you can see not only how important each part is in a chamber music group, but also how each member needs to observe his or her role in the music to create a well-balanced, well-functioning performance.

IV. Q&A

V. Closing remarks

fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

Selected References:

Cooney, Timothy, DiSpezio, Michael Anthony, Foots, Barbara K., Matamoros, Angie L., Nyquist, Kate Boehm, Ostlund, Karen L. Scott Foresman Science, Glenview, IL: Pearson, 2003.

Jones, T. Griffith, ed. Prentice Hall Science Explorer: Motion, Forces, and Energy. Boston: Pearson, 2009.

Trefil, James, Calvo, Rita Ann, Cutler, Kenneth. McDougall Littel Earth Science, Evanston, IL: McDougall Littel, 2005.

Illinois State Board of Education. Illinois Learning Standards, K-8. 2008 <http://www.isbe.state.il.us/ils/>

fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

Lesson Plan: A Well-balanced Diet of Harmony

Grade level: 1-4

Time frame: 45 minutes

Objectives:

- Know and understand that a **nutrient** is **a substance in food that living things need for health and growth**
- Know and understand that a well-balanced diet creates a balanced and healthy body
- Know and understand how music stays balanced and why this is important
- Know and understand the different roles each instrument plays in a piece of music
- Know how to create a balanced meal

Materials: Music, Chalk/board, Music selections (examples: Ritual Fire Dance by Manuel DeFalla, Braul by Bela Bartok, Ode to Joy by Ludwig van Beethoven, Habanera from *Carmen* by Georges Bizet, Canon in D by Johann Pachelbel, all scores found in Music for Three, volumes 1, 2, 5, and 8 by Last Resort Publishing)

Plan

Introduction (10 min.):

1. Musicians play selection #1: Bartok Braul (or play recording).

2. Ask students, did you like that piece? Did it sound balanced to you? Did it sound good? Why or why not?

3. Now listen again (eyes closed!) and see if you can hear any differences (play same piece having the bass voice drop out).

4. Ask students if they can describe what was different.

5. Explain to students that different parts of music help to keep it balanced and healthy just like a well-balanced diet helps students stay healthy and balanced. Explain what a nutrient is and how chamber music needs "nutrients" (good rhythm, tempo, observing dynamics, etc.) to stay balanced.

Activity 1 (20 min.):

1. Ask students to list healthy foods they could eat and why they're healthy.

2. Ask students to list unhealthy foods they could eat and why they're unhealthy.

3. Ask students what changes they think would happen to the music if the musicians ate only unhealthy foods. Musicians model unhealthy performance (one plays really loud, one plays sometimes and drops out sometimes, one plays really quietly, etc.; if kids are into it, try again with someone different playing very quietly, dropping in and out, etc., and ask if that sounded any better).

4. Ask students how to make the music sound healthy again. Model, based on their suggestions.

5. Teacher or one of the musicians explains what each person's job was in the ensemble (melody, supporting melody/harmony, bass). Have students relate each instrument to healthy foods in a journal entry. For example, the bassoon/cello/trombone is bass voice and the foundation for a good musical meal--like whole grains, the oboe/flute/clarinet and the violin/flute/saxophone and what makes the meal interesting and tasty, like the protein and the veggies. Play musical selection #2 while they journal.

5a. Play some different examples (Pachelbel's Canon, Habanera) and discuss whether their assigned roles of the instruments changed or stayed the same

Activity 2 (15 min.):

1. Students will create a balanced musical meal by choosing three healthy items and work them into a mini-song (Ode to Joy). (Give them a short poem or song where they replace certain words with healthy foods; you can use the one below or make up your own.) "We are healthy, we are sma-art, we eat healthy for our heart; good food helps to make us strong, we eat _____ to-play all-day long" (sung to main tune of Ode to Joy).

2. Have students get into small groups and each write a verse about healthy eating to the second part of Ode to Joy.

Evaluation:

- Students will be able to define what a nutrient is and state its importance to a healthy body through informal assessment.
- Students will demonstrate knowledge of a healthy diet by listing at least 3 healthy and 3 unhealthy foods as a group.
- Students will be able to demonstrate the difference between a balanced and unbalanced chamber music piece by manipulating musical variables of a live performance.
- Students will journal about each instrument's job in the ensemble by comparing it to an appropriate food.
- Students will write and perform a song demonstrating their ability to create a balanced meal.

fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

Lesson Plan: Creating Characters in Poetry and in Music

Suggested grade level: 6-8

Time frame: 45 minutes

Objectives:

- Know and understand how poets create characters (literal and figurative) in poetry
- Know and understand what parts of music make characters
- Know and understand new music vocabulary (*articulation, legato, staccato)*
- Review music vocabulary from previous lessons and will use in class (*piano, forte, allegro, adagio, tempo, dynamics)*

Materials: Two poems (one with an abstract character and one with a literal/concrete character), musical examples: La Rejouissance from *Royal Fireworks Music* by GF Handel, 2-3 live or recorded excerpts of the same solo instruments in a variety of time periods/styles (i.e., 2 excerpts featuring the violin in contrasting style, like Bach and Schoenberg, and 2 excerpts that feature the oboe, like Mozart and Brahms)

Plan

Introduction (10-15 min.):

1. Students will start a Listening Journal. Each day, students will either free write while music plays in the background or write about music and poetry with directed prompts.

2. Write Listening Journal Topic on the board (example listening journal topic for this lesson**:** How can music portray characters**?** Is it just with the different instruments**?** What other ways are there?). Write down the composer / piece (**Handel / La Rejouissance**) on the board and ask students to copy in their journal. Encourage students to use appropriate musical vocabulary (review from previous lessons).

3. Listen to **Handel, La Rejouissance** and have students write in their listening journal.

4. Ask two students to volunteer to read their journal entry to the class. Student should walk to the front of the class, stand straight, and speak clearly.

Activity (30 min.):

1. Just like authors create characters in stories and novels, poets often create characters in poems, but in very different ways. Students will explore how poets can create characters in both literal and abstract ways, and how composers can create a "character" (feeling) or more specific characters (in a narrative) through music. Students will take turns reading aloud a poem with characters

(literal) and will make a list (as a class) of descriptive words the poet uses to create that character. Students will then read a more abstract poem as a class and brainstorm a character based on the poem (not necessarily an actual character in the poem, but what sort of character might inhabit the poem, or if the poem was a person, what would he or she look like?).

2. Students will brainstorm how a composer's choice of instrumentation can impact the "character" of a piece. Using music vocabulary (articulation, crescendo, etc.), students will list all the parts of music that could build a musical character (review terms including *piano, forte, allegro, adagio, tempo, dynamics*).
3. Musicians will take turns playing 2 contrasting excerpts on their instruments (or teacher can use recorded examples). Musician 1 (or teacher) will write each instrument on the board, and students will think of specific descriptive words for each instrument relating to their excerpts (i.e., high/low, bright, brassy, shrill, smooth, soft/loud, aggressive, fluffy, etc.). The class will brainstorm what sort of character each instrument might be—it could be an animal, a person (general or specific), an existing character (real or fictional), or a made-up character.
4. Musician 2 will play a track from a CD combining the individual instruments above with several other instruments (example: Ligeti Woodwind Quintet, movement 1). Students will consider the following: do our characters sound different with many other instruments?
5. Students will brainstorm how the characters are interacting: Is one character dominant? Is there conflict? Do the characters work together? Does their relationship change throughout the piece?
6. Students will then write a short poem while listening to the Ligeti Quintet movement once more, incorporating the characters they created.

Evaluation:

- Students will be able to cite concrete literary examples of how poets use language to create both literal and figurative characters in poetry through informal assessment.
- Students will write a journal entry on how composers can create characters though music.
- Students will use music vocabulary to describe their musical characters and will link the music vocabulary to non-musical vocabulary.

fifth house ensemble

7200 North Rogers Ave

Chicago IL 60645

Lesson Plan: Musical Ocean Topography

Suggested Grade Level: 3-6

Time frame: 45 minutes

Objectives:

- Know and understand geology terms (topography, mountains, valleys, trenches, crevasses, etc.)
- Recognize changes in the timbre and pitch of music and represent those changes visually
- Know and understand the different basic ecosystems of the ocean and why certain species are better suited in that area than others

Materials: white paper (either 8 ½ x 11 or poster-sized), colored pencils or markers, 2 contrasting recorded examples of orchestral music (one loud, one soft, one fast, one slow, etc.)

Plan:

Introduction (5 min.):

1. Introduce scientific concepts (different ocean zones/levels, species that live in each, adaptations of those species).

2. Compare how music has a shape just like the ocean floor, with highs and lows, and different geological features, and explore different musical landscapes.

3. Explain what topography means (the mapping of the features of an area, usually having to do with hills, valleys, mountains, canyons and crevasses, etc.).

Activity 1 (10-15 min.):

1. Play two short (3-5 min.), recorded orchestral pieces, and ask students to listen for the changes in the music. On a piece of scratch paper, have students keep track of approximately how many changes they hear in each one (separately).

2. Play the pieces again. On a large piece of blank paper, have students draw a straight line across the bottom of the page (to serve as a timeline reference for the music). Then have them put little marks on their line for each change they heard in the music (the space between the lines doesn't have to be to scale). Now students are ready to draw a topographical map of the piece. (If the music gets loud, draw something to represent that, or if you hear high-pitched instruments, or low instruments; try to represent the rate of change in the music—if it gradually grows, make a gradual slope, or if there is a sudden change or event, reflect that in your drawing). Be sure to have the students pace themselves—remind students that each

musical example is about 3 minutes long, so to just draw a little bit at a time and try to follow the changes they marked on the timeline at the bottom of the page.

3. Musician/teacher will draw with them. Feel free to give students another listen to the music, as each time they hear it, they will become more familiar with it and will notice more details.

Activity 2 (15 min.):

1. Repeat **Activity 1,** but this time, add "animals" to the respective drawings. (For example, if you hear something low at the beginning of the piece, you should draw some sort of creature that you think sounds like that (it can be totally made up!); if you hear something really sharp and pointy, draw that If you recognize the instrument you're hearing, you can write it next to the creature. Composers often choose specific instruments to help them shape the piece of music.)

2. Ask students what might a composer use/do if he/she wants to show something really light or high (flute, piccolo, violin, E-flat clarinet, higher instruments)? How about something to really make a loud, dramatic effect (horn, trombones, trumpets, timpani, cymbals)? What are some ways composers can change the music to show the change in the musical landscape?

Activity 3 (10-15 min.):

1. Journal entry: Using their drawings, students will identify which level of the ocean each musical map might be of and will label their drawings accordingly. Students will then write a short descriptive paragraph about what kind of music they might hear in each of the other ocean levels, including which instruments they might hear, what the tempo would be like, and what the dynamics would sound like.

<u>Evaluation:</u>

- Students will demonstrate their understanding of topography by drawing a map of the music with topographic features.

- Students will represent different timbres and changes in pitch by drawing a musical map of several pieces of music, showing the musical changes by changes in the shape of the line they draw.

- Students will demonstrate their knowledge of different levels of the ocean, and the animals that live in those levels, through a journal entry based on their drawings.