



NATIONAL ARTS CENTRE  
CENTRE NATIONAL DES ARTS  
Canada is our stage. Le Canada en scène.

NAC ORCHESTRA  
STUDENT MATINEE CONCERTS  
2017-2018 season

# Symphony Hack Lab

Illustration: RAStudio



**Teacher  
Study Guide**

**Grades 4 to 8**

# Welcome!

## MESSAGE FROM THE PRESIDENT AND CEO OF CANADA'S NATIONAL ARTS CENTRE

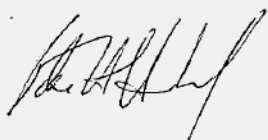
The start of the 2017-18 school year coincides with the exciting and historic transformation of the National Arts Centre.

There's a stunning, new glass atrium that embraces and engages our community, opening up onto the Parliament Buildings and some of our country's most important landmarks. There is also plenty of fully accessible and animated space to present performing arts education events, as well as a digital studio that can link students all over the country and beyond.

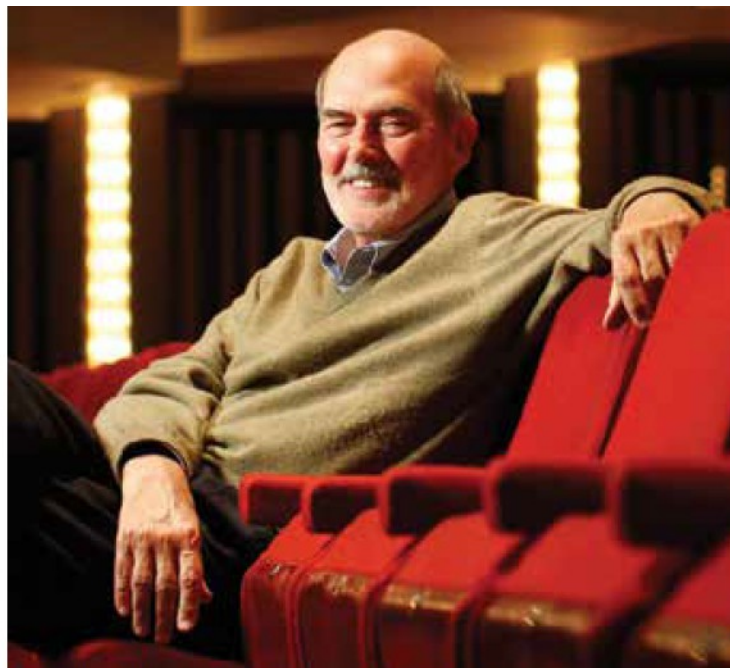
We believe that the performing arts can be powerful and transformative for young people, and it is our hope that the experiences we offer, whether through matinees, workshops or open rehearsals, will inspire young minds and open new worlds.

As Canada's home for the performing arts, the NAC is committed to supporting educators across Canada. In addition to our many community outreach and arts education projects, we provide free resource materials available through [artsalive.ca](http://artsalive.ca), our award-winning arts and education web site. We welcome every opportunity to engage with teachers about our concerts, plays and performances for the year ahead.

Thank you for your support. We look forward to welcoming you and your students to the "new" National Arts Centre in 2017-18.



**Peter Herrndorf**  
President and CEO  
National Arts Centre



Peter Herrndorf, President and CEO | National Arts Centre



**Alexander Shelley**, Music Director | NAC Orchestra

### National Youth and Education Trust

The National Youth and Education Trust is the primary resource for youth and education funding at the National Arts Centre. Through the Trust, individual and corporate donors from all across the country help the NAC nurture and develop the creativity of young people in all regions across Canada and support the educators and artists who challenge and encourage them.

Lead partner



Student Matinees at the National Arts Centre are made possible in part by an Anonymous Donor and



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**Jessica Roy** and the **Ottawa Public Library** for the bibliography, and  
**Sophie Reussner-Pazur** from the NAC Music Education Office for editorial direction.*

# About this Guide

As a support to your classroom work, we have created this guide to help introduce you to the program and content of the performance. In it you will find:

- ★ **Program notes** about the music you will hear at the concert;
- ★ **Classroom activities** for you to share with your students.
- ★ **Biographical information** about the NAC Orchestra and the performers

We hope this study guide is helpful in preparing you for your concert experience. The level of difficulty for the activities is broad, so please assess them according to the grade level you teach.

## See you at the performance!



**Alain Trudel**, Principal Youth and Family Conductor | National Arts Centre Orchestra

Should you have any questions regarding  
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# Curriculum Expectations

## The Arts: Music

“The Arts” curriculum documents for Ontario outline the overall and specific expectations for each grade. As well, opportunities to listen and respond to recordings and live musical performances are supported.

The **music activities** (page 19 to 32) are suggestions that could be built into any existing grade 4-8 music program, as appropriate for the particular grade and program.

After the concert, a joint **Listening Log** could be completed about the works heard live.

The learning activities in this guide will develop students’ music knowledge of the **Fundamental Concepts/elements of Music and their skills** as described by the expectations for each grade, depending upon how these activities are used to prepare for and to respond to the concert.

### The Activity No. 1 “The Magic Carpet” will cover the curriculum elements below:

#### Overall and Specific Expectations:

**C1. Creating and Performing:** apply the creative process to create and perform music for a variety of purposes, using the element and techniques of music

C1.3 Create musical compositions for specific purpose and audiences

**C2. Reflecting, Responding, and Analyzing:** apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

C2.2 Identify the elements used in the music they perform, listen to, and create, and describe how they are used.

#### Fundamental Concepts and Elements:

- Timbre: *all grades* / tone colour for particular purposes (e.g., use of trumpets for a fanfare, flutes for depicting birds, various instruments for creating specific moods) [Gr. 5]
- Dynamics and other expressive controls: *all grades* / changes in volume encountered in music listened to, sun, and played; articulations [Gr. 4]
- Pitch, duration: *all grades*

### The Activity No. 2 “Analyzing a Natural Soundscape” will cover the curriculum elements below:

#### **Grades 4-8**

**C2. Reflecting, responding, and Analyzing:** apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

**C2.1** Express detailed personal responses to musical performances in a variety of ways (Gr. 4, 5, 6, 7, 8)

**C2.2** Identify the elements of music in the music they perform, listen to, and create, and describe how they are used (Gr. 4, 5)

**C2.2** Identify the elements of music in the repertoire they perform, listen to, and create, and describe how they are used (Gr. 6)

**C2.2** Analyze, using musical terminology, ways in which the elements are used in the music that they perform, listen to, and create (Gr. 7)

**C2.2** Analyze, using musical terminology, ways in which the elements of music are used in various styles and genres they perform, listen to, and create (Gr. 8)

# Curriculum Expectations

**The Activity No. 3 “Creating Music that Represents Nature Sounds with Graphic Scores” will cover the curriculum elements below:**

**C1. Creating and Performing:** apply the creative process to create and perform music for a variety of purposes, using the elements and techniques of music;

C1.3 Create musical compositions for specific purposes and audiences (Gr.4, 5, 6)

C1.3 Create musical compositions in a variety of forms for specific purposes and audiences (Gr.7, 8)

C1.5 Demonstrate an understanding of musical signs and standard notation on the five-line staff, and use devised notation to record the sequence of sounds in a composition of their own (Gr.4)

C1.5 Demonstrate an understanding of standard and other types of musical notation through performance and composition (Gr.5, 6, 7, 8)

**The Activity No. 4 “Violin Concerto in A minor, 1st movement, BWV 1041” and the activity No. 5 “Also Sprach Zarathustra - The Soundtrack” will cover the curriculum elements below:**

**Fundamental Concepts and Elements:**

Pitch, Duration, Timbre, Dynamics, Texture/Harmony

**C1. Creating and Performing:** apply the creative process to create and perform music for a variety of purposes, using the elements and techniques of music;

C2.2 Identify the elements of music in the repertoire they perform, listen to, and create, and describe how they are used (Gr. 4, 5, 6)

C2.2 Analyze, using musical terminology, ways in which the elements are used in the music that they perform, listen to, and create (Gr.7, 8)

**The Activity No. 6 “Ludwig van Beethoven - Symphony No. 6 in F major, Op. 68 “Pastoral” IV. Thunderstorm and Tempest” will cover the curriculum elements below:**

**C2. Reflecting, Responding, and Analysing:** apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences

C2.1 Express detailed personal responses to musical performances in a variety of ways

All Fundamental Concepts and Elements

## Listening Guide (page 34)

### Grades 1-8 Overall and Specific Expectations:

**C2. Reflecting, Responding, and Analysing:** apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

C2.1 Express detailed personal responses to musical performances in a variety of ways.

C2.2 Identify the elements of music in the repertoire they perform, listen to, and create, and describe how they are used.

C2.3 Identify and give examples of their strengths and areas for improvement as composers, musical performers, interpreters, and audience members.

All 'Fundamental Concepts' could be referred to through the listening activities.

## Know Before You Go Concert Etiquette (pages 32 & 44)

### Grades 1-6 Overall and Specific Expectations:

**C2. Reflecting, Responding, and Analysing:** Apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

#### Grade 1,2,3,4,5:

C2.3 Identify and give examples of their strengths and areas for growth as musical performers, creators, interpreters, and audience members.

#### Grade 6:

C2.3 Identify and give examples of their strengths and areas for improvement as composers, musical performers, interpreters, and audience members.

### Grades 7-8 Overall Expectations:

**C2. Reflecting, Responding, and Analysing:** apply the critical analysis process to communicate their feelings, ideas, and understandings in response to a variety of music and musical experiences;

*Presented in association with*



with the NAC Orchestra



CANADA SCIENCE AND  
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MUSÉE DES SCIENCES  
ET DE LA TECHNOLOGIE  
DU CANADA



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# Concert Program

(subject to change)

## Symphony Hack Lab

- **NAC Orchestra**
- **Alain Trudel**, conductor
- **Dr. Andrew Pelling**, co-host, director of pHacktory and *TED Senior Fellow*
- **Catherine Emond**, co-host, Education and Interpretation Officer, Canada Science and Technology Museum
- **Adrian Anantawan**, violin
- **Jesse Stewart**, composer, percussion
- **Reynaliz Herrera, Kenneth Simpson, Jonathan Wade, Kristofer Maddigan, Andrew Harris**, percussion
- **Students from Regina Street Alternate School**
- **Janet Irwin**, playwright
- **Tobi Hunt-McCoy**, stage manager

### Concert dates:

Monday, February 5, 2018  
10 A.M. (English) and  
12:30 P.M. (French)

### Concert location:

Southam Hall, National Arts Centre

### Running time for all concerts:

Approximately 55 minutes  
without intermission

## In this concert, students will hear excerpts from:

R. STRAUSS	Also Sprach Zarathustra, Op. 30 Fanfare (Opening)
J. STRAUSS	Music of the Spheres: Waltzes, Op. 235
BEETHOVEN	Symphony No. 6 in F major, Op. 68 "Pastoral" IV. Thunderstorm and Tempest
STEWART 	Mud Lake Symphony (new NAC commission)
J.-S. BACH	Violin Concerto in A minor BWV 1041 I. Allegro moderato

### MESSIAEN Les Offrandes Oubliées

The light installation featured in the NAC Orchestra's *Symphony Hack Lab* performances designed and created by **pHacktory**, with generous support from **Ecotonos Design + Manufacturing**

### ANDERSON The Typewriter

### HERRERA Bicycle Beats (excerpt from *Ideas, Not Theories*)

### JÄRVLEPP Garbage Concerto for Recycled Percussion and Orchestra I. Dance of the Wind

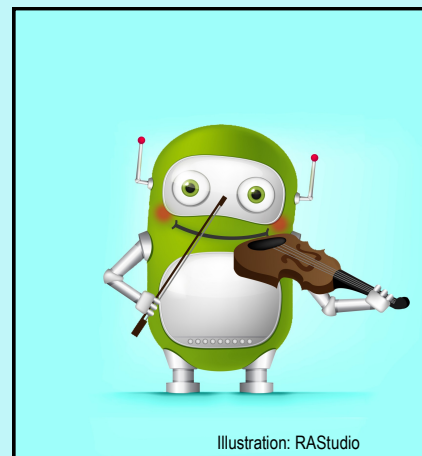


Illustration: RASudio



# Program Notes

## *Also Sprach Zarathustra*, Opus 30 (Fanfare, Opening)

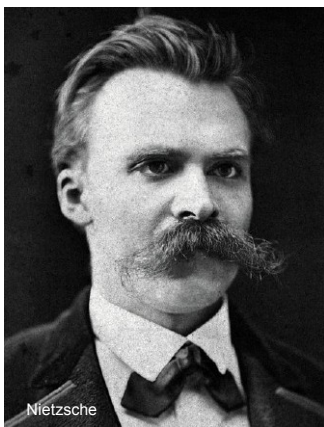
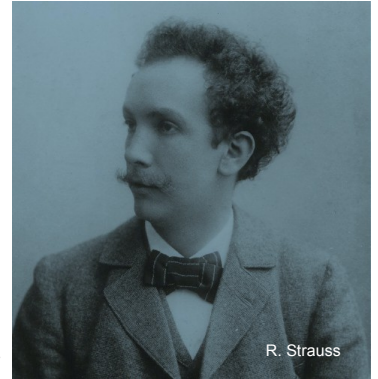
R. STRAUSS

***Also Sprach Zarathustra***, which translates from German to “Thus Spoke Zarathustra”, is a tone poem written by **Richard Strauss** (left) in 1896.

A tone poem is a piece of music that is meant to evoke the mood of a poem, novel, or other pieces of writing.

In this case, Richard Strauss took inspiration from a novel called “*Also sprach Zarathustra: Ein Buch für Alle und Keinen*” (which translates in English to “*Thus Spoke Zarathustra: A Book for All and None*”) by Friedrich Nietzsche.

The novel is a three book series about the philosophical idea of eternal recurrence, or the thought of the soul continuing eternally, leaving from one’s body when it passes away, to new person when they are born. In this way, the soul cycles through life eternally. This is a type of philosophy or way of thinking about life!



### DID YOU KNOW?

**Nietzsche** (above left) got the main idea for his novel, ***Thus Spoke Zarathustra: A Book for All and None***, when he was near a pyramidal block of stone (above) on the shore of Lake Silvaplana in Switzerland. It’s still there to see!

Listen to ***Also Sprach Zarathustra*** with the Berliner Philharmoniker led by conductor Gustavo Dudamel: <https://www.youtube.com/watch?v=Szdziv4tI9o>

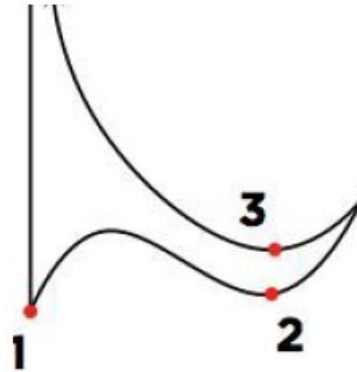
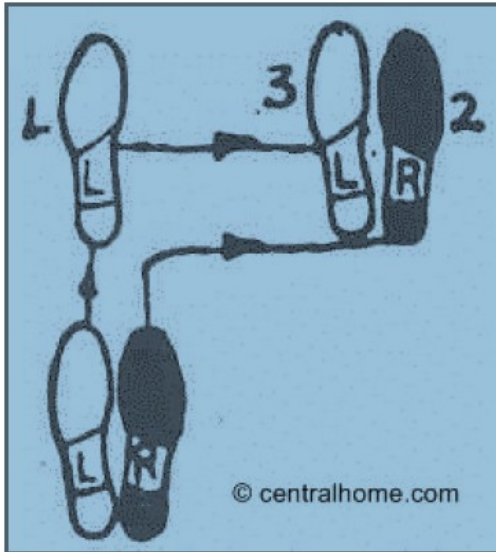
Listen to an NAC PodCast on ***Also Sprach Zarathustra*** presented by NAC host and journalist [Jean-Jacques van Vlasselaer](https://nac-cna.ca/en/podcasts/episode/richard-strauss-also-sprach-zarathustra):  
<https://nac-cna.ca/en/podcasts/episode/richard-strauss-also-sprach-zarathustra>

## Music of the Spheres: Waltzes, Op. 235

J. STRAUSS

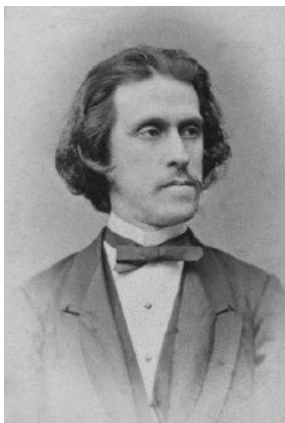
A waltz is a three beat dance meant for two people to enjoy typically in ballroom and folk setting and dates back to the 16th Century Europe (1500s). The movement of steps is shown below:

Beside the picture of the steps is the conducting pattern for a three beat meter in music. See any similarities? There is no direct relation but it's interesting that both have a triangular look!



### DID YOU KNOW?

If the 3 beat pulse quick and upbeat for dancing, the conductor will likely just gesture the “1” and the 3 beats are felt collectively by the conductor and orchestral musicians.



Perhaps **Josef Strauss**, an Austrian composer born in Vienna in 1827 (left), was trying to emulate the dance between planets when he wrote the piece **Music of the Spheres**.

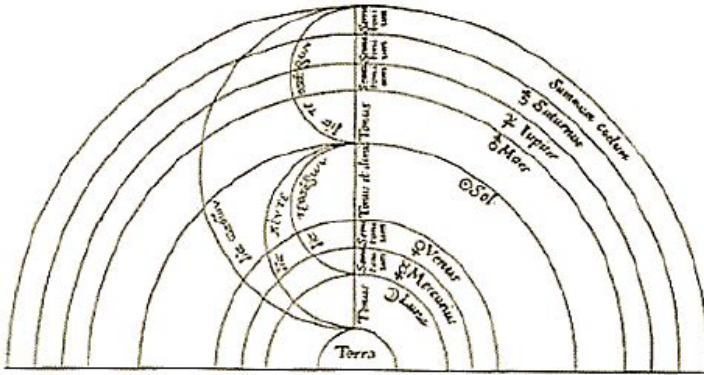
We work together when we dance, pushing and pulling each other to guide ourselves on the dance floor. In a way, this is just like how gravity works, pushing and pulling the spherical planets around each other like a dance that makes the world spin.

Josef Strauss was inspired by the Greek scientist, Pythagoras, who was born around 570 BC.

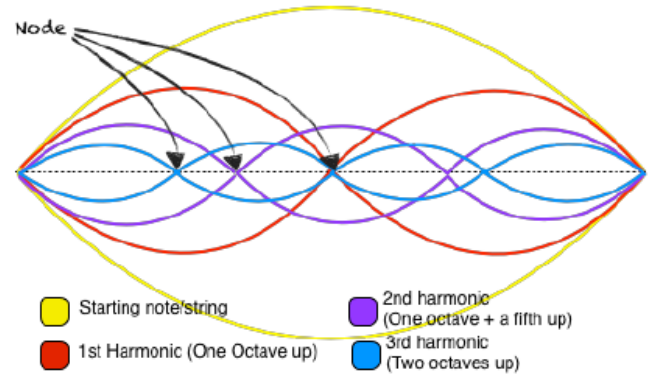
Pythagoras discovered ratios in musical intervals. In other words, he figured out that the spacing between pitches (sound) have a mathematical pattern in relation to each other. He theorized that these same mathematical patterns are also found in the relationships between planets!

These relationships between planets can occur because, according to Pythagoras, planets emit their own unique musical frequencies based on their orbital revolutions (one orbital revolution being one orbit around the sun)!

Below is a diagram explaining Pythagoras' thoughts: (Pythagoras' Chart)



(Pythagoras' Chart)



(A stringed instrument demonstrating where changes in harmonic frequencies occur)

By comparing Pythagoras' chart, more specifically the vertical line in the centre, with the horizontal string in the second chart, one can see how there are similarities between musical frequencies and Pythagoras' theory of planets and their frequencies!

Josef Strauss himself studied engineering and even designed some of his own inventions. He published two engineering books as well as invented a horse-drawn street sweeper! Pythagoras' work inspired him and his education in music allowed him to mix musical composition with his passion in science to create **Music of the Spheres**

Listen to *The Music of the Spheres* : <https://www.youtube.com/watch?v=SterlbcjyYc>

## Symphony No. 6 in F major, Op. 68 "Pastoral" IV. Thunderstorm and Tempest

BEETHOVEN

### DID YOU KNOW?

**Beethoven** became deaf but he was still able to compose music by *feeling* the vibrations of sound, biting onto a rod attached to the piano. The vibrations traveled through the rod into his jaw bone, which enabled him to hear! He discovered Bone Conduction.

Another musician who does this is Scottish percussionist **Evelyn Glennie** (right). She feels the vibrations of the percussion instruments when she plays!



# Symphony No. 6 in F major, Op. 68 “Pastoral”(continued)

## IV. Thunderstorm and Tempest

BEETHOVEN

Beethoven's piece, **Symphony No. 6**, was written in 1803. It is a programmatic piece, which means that the music is meant to follow a narrative. In this case, Beethoven composed his music in relation to his walks in the countryside.

Titles of the movements (movements: rather than large singular pieces of music, movements are separate sections in pieces of music) are named according to what the piece is about.

The titles are as follows:

- I: Awakening of cheerful feelings on arrival in the countryside
- II: Scene by the brook
- III: Merry gathering of country folk
- IV: Thunder. Storm
- V: Shepherd's song. Cheerful and thankful feelings after the storm

There are five movements, which is unique to the 4 movement symphonies from Beethoven's Era (Classical Era 1730-1820).

Listen to the *Symphony the « Pastoral »*: [https://www.youtube.com/watch?v=ULHgdT\\_Xmuc](https://www.youtube.com/watch?v=ULHgdT_Xmuc)

Listen to an NACOCast with NAC Orchestra principal bassoon [Christopher Millard](#) on Beethoven's «Pastoral» symphony: <https://nac-cna.ca/en/podcasts/episode/a-prophetic-conversation>

Learn more about **Beethoven's** Life, Times and Music on [ArtsAlive.ca](#) (see Music, Great Composers)



### DID YOU KNOW?

There is a 1940s animated series called **Fantasia** that includes Beethoven's "Pastoral" symphony! Here is a link to a section of the film: <https://www.youtube.com/watch?v=-koZBg0iOrw>



## Mud Lake Symphony (new NAC commission) 🇨🇦

STEWART

Students at Regina Street Alternative School in Ottawa have been working with composer **Jesse Stewart** the past few years to compose a very special symphony. It is inspired by **Mud Lake** – home to 250 bird species - and a hidden treasure in Ottawa's West End.

Mud Lake is one of the most ecologically important natural habitats in the urban part of Canada's Capital Region.

More about Mud Lake: <http://ncc-ccn.gc.ca/places-to-visit/parks-paths-and-parkways/mud-lake>



# Violin Concerto in A minor BWV 1041

## I. Allegro moderato

J.-S. BACH

**Johann Sebastian Bach** composed his violin concerto between 1717 and 1723 during the Baroque Era (c. 1600-1750).

Playing this piece for the upcoming concert is **professional violinist Adrian Anantawan** who has achieved numerous successes in the musical world. He has won many awards as well as graduated from the Curtis Institute of Music, Perlman School of Music, and Yale University. He was part of the National Arts Center Young Artists Program and studied with Pinchas Zukerman, the former musical director of the NAC orchestra!

Listen to a recording of Bach's Violin Concerto:  
<https://www.youtube.com/watch?v=A4bUCMV2oCE>

### DID YOU KNOW?

Anantawan is Canadian! He is from Mississauga, Ontario, which is near Toronto, about 5 hours driving from Ottawa. He has played for Pope John Paul II, Christopher Reeve and the Dalai Lama!

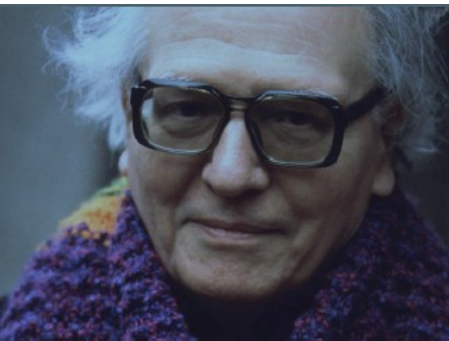


Listen to Adrian Anantawan play the music of the *Schindler's List* movie:  
<https://www.youtube.com/watch?v=k-uAvM6ZTLc&index=112&list=FL4PQs2y8-PxSk7jVzmoFI9A>

Listen to an NAC PodCast on J.-S. Bach with NAC host and journalist [Jean-Jacques van Vlasselaer](https://nac-cna.ca/en/podcasts/episode/episode-15-bach):  
<https://nac-cna.ca/en/podcasts/episode/episode-15-bach>

## Les Offrandes Oubliées

MESSIAEN



**Olivier Messiaen** (b. 1908 d. 1992) had a special condition called ***synaesthesia***. Synesthesia means that when a person experiences one sensation, other sensations become involved without the person's intention!

For example, when a synesthesiatic sees a number, they may also see a colour that seems like it belongs to the number. This example has to do with colour and sight but synesthesia can affect other senses and ways of thinking.

For Messiaen, when he thought of music, he would see colours! He would sometimes write down colours in certain parts of the music to help conductors in interpreting his music.

Messiaen could sometimes describe colour simply, like calling it "gold and brown", but other times he could be incredibly detailed: "blue-violet rocks, speckled with little grey cubes, cobalt blue, deep Prussian blue, highlighted by a bit of violet-purple, gold, red, ruby, and stars of mauve, black and white. Blue-violet is dominant".

Here is a video and recording of Messiaen's piece:  
<https://www.youtube.com/watch?v=UPsfNMTHxXs>

### DID YOU KNOW?

A more accurate way of describing synaesthesia is the less common term "***ideasthesia***", where interactions with ideas or concepts activate a unique perception or sensation. This term emphasizes that senses are activated because of a semantic, or thought, input rather than just sensory!

## Bicycle Beats (excerpt from *Ideas, Not Theories*)

HERRERA

**IDEAS, NOT THEORIES** is an original theatrical percussion show of **Reynaliz Herrera**'s own compositions that features percussion theatre using unconventional instruments such as bicycles, tap and body percussion, water, brushes, as well as traditional percussion instruments such as marimbas and drums.

All of the musical works are linked together through a storyline, physical theatre and comedy, and original characters making the complete performance a unique, quirky and creative artistic experience.

*Ideas, Not Theories* was recently featured inside *The New York International Fringe Festival 2015*, *The NYU Day of Percussion 2016*, *The Boston and Brooklyn Children's Museum 2016- 2017*, *ILLUMINUS 2017*, *ArtBeat 2017*, and *NY and Boston Maker Faires*, among others.

Here are two videos of Reynaliz Herrera's **Bicycle Beats**:

[https://www.youtube.com/watch?v=xsEyRy8WW\\_o](https://www.youtube.com/watch?v=xsEyRy8WW_o)  
<https://www.youtube.com/watch?v=-s8Tp1iu8LM>



## Garbage Concerto for Recycled Percussion and Orchestra

JÄRVLEPP

Canadian composer [Jan Järvlepp](#) identifies strongly with postmodern musical styles, writing music that is accessible to many audiences. He is active in his home city of Ottawa, having received premieres by the Ottawa Symphony Orchestra (*Garbage Concerto*) and the Ottawa Chamber Music Festival (*Pierrot Solaire*).

The following are details about the *Garbage Concerto* in Mr. Järvlepp's own words:

*On a summer day in 1992, I looked into my blue recycling box and wondered "I could do something with that!" I tapped on the bottoms of the metal cans with a drumstick and found that many sounded similar, while those with leady grey bottoms didn't sound good at all. So I kept only a set of five, good distinct sounding ones. While they didn't have specific pitches, they could be called high, medium-high, medium, medium-low and low.*

*Since the drumsticks bounced nicely off of them, they became my preferred garbage instrument as I tried out my compositional ideas. I decided to notate these five cans on the five lines of the staff. I also chose five plastic containers and five glass jars. I added a metal can maraca, three hubcaps and the blue box itself, which served as a bass drum. Now I was building a garbage consort! Playfully setting up a medley of instruments made out of garbage was the easy part.*

*Now what would I do with these odd instruments for which there is no playing tradition? These new garbage instruments could not produce a legato melodic line. Therefore, my compositional challenge was to create rhythmically interesting lines that were not melodic and did not rely on the beauty of tone.*

*During 1992-95, I experimented using the metal cans and notating the more interesting fragments that I was able to come up with.*

*(Continued from previous page)*

*I explained to David Currie, conductor of the Ottawa Symphony Orchestra (OSO), my composition experiments. By chance the OSO was looking for a piece to showcase its percussion section! Suddenly I was composing a concerto for garbage instruments and a full symphony orchestra!*

*Since there were five cans, bottles or jars in each garbage instrument, I arbitrarily chose five players for the solo ensemble. It is tedious to listen for an extended period to the banging of garbage, which never sounded very good in the first place. So a contrasting slow movement would definitely be a good idea. By experimenting with beer bottles filled with water to different levels, I developed a good assortment of pitches with which to compose melodic slow music. Then I followed that with a lively final movement using the same instruments as the first movement.*

In January 1996, the OSO, led by David Currie, premiered the Garbage Concerto at the National Arts Centre and members of the OSO's percussion section were the soloists. The Concerto received much praise by the audience and the press and was subsequently performed internationally with the Kroumata Percussion Ensemble in Stockholm and the Singapore Symphony Orchestra. A CD was also recorded by the Singapore Symphony and released worldwide in 2000, causing further repeat performances on four continents by several orchestras and percussion ensembles.

To learn more about composer Jan Jarvlepp, visit: <http://www.janjarvlepp.com/>



NAC Orchestra percussionist **Jonathan Wade** will be performing on a metal can maraca (pictured here) for Järvillepp's *Garbage Concerto*.

This recycled instrument is one of the originals that was created for the premiere performance with the Ottawa Symphony Orchestra in 1996. It is made of two small soup cans and three larger coffee cans.

Mr. Järvillepp's father made the holder out of second-hand wood.

Listen to Tambuco performing the *Garbage Concerto*:

<https://www.youtube.com/watch?v=I9784VxvU5E&list=RD19784VxvU5E&index=1>

Learn more about different composers' lives and Music on [ArtsAlive.ca](http://ArtsAlive.ca) (see Music, Great Composers)





# What is the NAC Orchestra made up of?



First of all, the NAC Orchestra is made up of 61 men and women, playing together on a variety of musical instruments. They are divided into four different sections (**string**, **woodwind**, **brass** and **percussion**) but they are united in one common goal: making music together. You might already know that orchestras are not always the same size. Smaller orchestras, with between 20 and 34 musicians, are called “chamber orchestras.” Larger orchestras, with between 60 and 110 musicians, are called “symphony orchestras” or “philharmonic orchestras.”

The NAC Orchestra is a symphony orchestra, not too small, not too big, just the right size for your enjoyment and pleasure.

## The NAC Orchestra **STRING SECTION** contains:

### **20 violins**

### **6 violas**

(somewhat larger than a violin)

### **7 cellos**

(definitely larger than the viola)

### **5 double basses**

(twice the size of a cello!)

### **1 harp**

- ★ All these instruments, except the harp, have four strings.
- ★ Their sound is produced by the friction of a bow on a string, or plucking the strings by the fingers, allowing them to vibrate.
- ★ Plucking the strings is called *pizzicato* (meaning “plucked” in Italian).
- ★ Bigger instruments have lower sounds; for example, the sound of the violin is higher than the double bass.
- ★ Every string instrument is constructed of pieces of wood carefully glued together and covered with several coats of varnish – no nails or screws are used.



### ***DID YOU KNOW:***

*The bows that are used to play some stringed instruments are made of wood and horsehair?*



## The NAC Orchestra WOODWIND SECTION contains:



**2 flutes**  
**2 oboes**  
**2 clarinets**  
**2 bassoons**

***DID YOU KNOW*** that reeds are made of cane, more commonly called “bamboo”?

- ★ These instruments are basically tubes (either wood or metal) pierced with holes. As a musician blows through their tube, they cover different holes with their fingers to produce different notes.
- ★ Some wind instruments use a reed to produce sound. A reed is made of thin wood which vibrates against the lips as a musician blows into the instrument to create a sound.
- ★ Of the four woodwind instruments of the orchestra, only the flute doesn't require a reed.
- ★ Clarinets are single reed instruments, whereas oboes and bassoons are double-reed instruments. It means that the oboists and bassoonists use double-reeds against their lips to create a sound.
- ★ Most wind instruments are made from wood, like ebony, except for the flute, which is almost always made of silver.
- ★ Flutes create the highest notes, bassoons create the lowest.

## The NAC Orchestra BRASS SECTION contains:

**2 trumpets**  
**5 French horns**  
**3 trombones**  
**1 tuba**

***DID YOU KNOW*** that most brass instruments have a special spit valve that allows water, condensation generated by blowing in the instrument, to be expelled?



- ★ Brass instruments are definitely the loudest in the orchestra; it explains why there are fewer brass players than string players.
- ★ They are made of long metal tubes formed into loops of various lengths with a bell shape at the end. The longer the length of tube, the lower the sound of the instrument will be.
- ★ The sound is created by the vibrations of lips as the musician blows into a mouthpiece that looks like a little circular cup.
- ★ Brass instruments have small mechanisms called valves that allow the sound to change, modifying the distance the air travels through the tube each time they are pressed or released by the player. However, the trombone has a slide that moves to change notes.

## The NAC Orchestra PERCUSSION SECTION contains:

**1 set of Timpani**

**2 other percussionists who play Xylophone, Marimba, Snare Drum, Wood Block, Cymbals and many other interesting instruments.**

*Did you know that a timpani looks like a big cauldron?  
But don't try making soup in it!*

- ★ Percussion instruments help provide rhythm for the orchestra.
- ★ Within this family of instruments, there are 3 types: metal, wood and skin.
- ★ These instruments are either “pitched”(they produce a specific note, like the xylophone) or “unpitched” (they produce a sound that has no specific note, like the snare drum).
- ★ Percussion sounds are generally produced by hitting something with a stick or with the hands.
- ★ Different pitches are produced on the timpani by changing the skin tension either by tightening or loosening screws fixed to the shell, or by using the pedal.

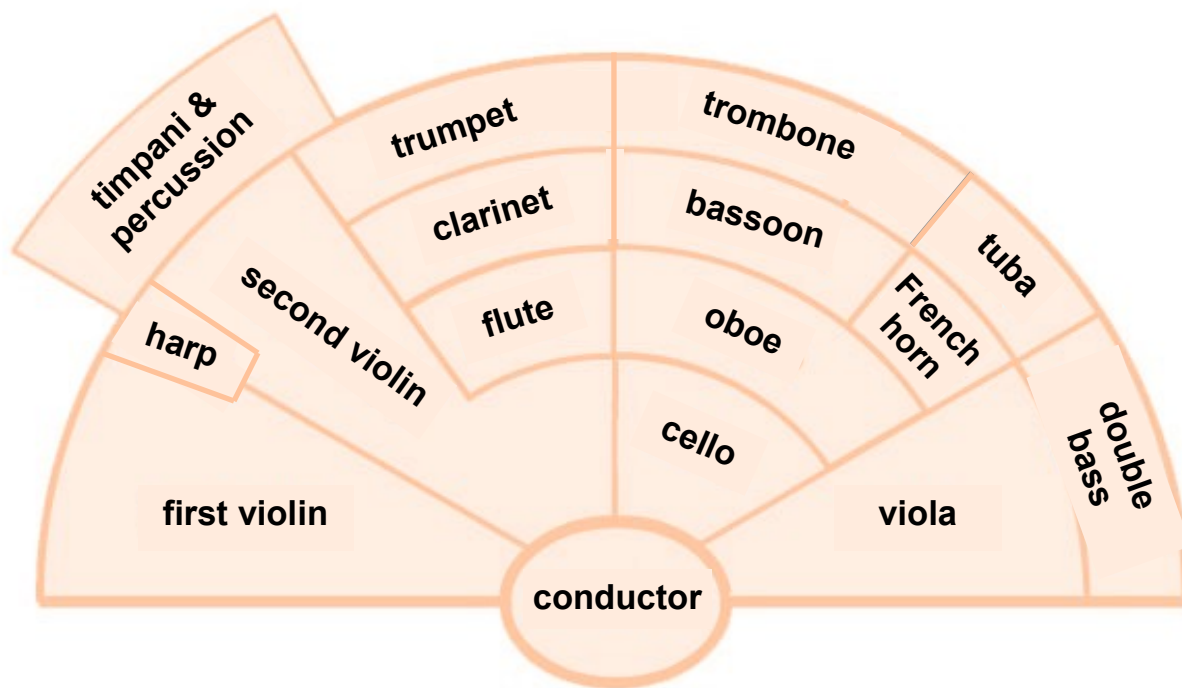
Visit the  
Instrument Lab  
on [ArtsAlive.ca](https://www.artsalive.ca)

*Music to tweak,  
tinker and listen to  
all your favourite  
instruments of the  
orchestra!*





# Map of the NAC Orchestra Sections



# Classroom Activities

## Activity No. 1: The Magic Carpet

- Have students **close their eyes** and become absolutely silent; listen for every sound they hear within the classroom and outside it.



- **Brainstorm** a list of the sounds they hear, first individually, then sharing with a small or the large group; e.g. fluorescent lights, breathing, fans, footsteps in the hall, a nearby class singing, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, etc.



- Inform students that they are each an '**earwitness**', and walk around the school collecting sounds (by recording and/or making lists); repeat this idea twice more--outside the school, and in a natural area.



- **Write the lists of different sounds** heard on chart paper/board. Have students suggest different categories into which to classify the sounds; e.g., Sounds made by nature; sounds made by humans; sounds made by machinery, etc.



- Have **students suggest other classifications**, e.g., high sounds/low sounds; loud sounds/soft sounds; patterns of sounds at a fast tempo/slow tempo; smooth sounds/detached sounds; other categories?

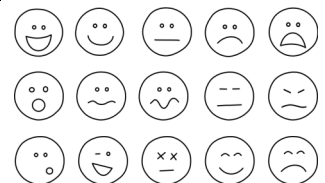


- **Choose a few sounds** that a number of the students all heard; and write descriptions for the sound; e.g., bird singing in the tree outside: high-pitched, jagged melodic contour, soft dynamics, one long note followed by several short notes...



If you do not have a woodlot close by, you might try listening to Dan Gibson's **By Canoe to Loon Lake** <https://www.youtube.com/watch?v=4j2IHUljSF0>

- Discuss how sounds communicate about where we are, what we are doing, how we are feeling.... Ask **What would our school be like without any sound? Our community? Our world?...**





## Activity No. 1: The Magic Carpet (continued)

- On another day, have each student **pick up a 'piece of nature'** that looks interesting to them (with the knowledge that they will put the piece back where it was found after finishing with it)



- Have students **study their piece of nature**; then find a way to **represent it with a sound** or sounds, using their voices, body percussion, found sounds (paper, chairs...), non-pitched percussion instruments (e.g. maracas, tambourine); pitched percussion instruments (e.g. glockenspiel, xylophone), recorders, band instruments, string instruments ...



- When all students are ready, have them **place their 'pieces of nature' onto a long piece of fabric laid onto the floor**. Students may only touch their own piece! When all are finished placing the pieces, **gather them around the 'magic carpet'**, prepared to play whenever a mallet is over their piece of nature. The conductor (teacher the first time) draws a 'magic mallet' very slowly over and around the arrangement on the 'magic carpet', with students playing their sounds when indicated by the mallet.



- Have **students respond to the performance**, describing it with music terminology. They may describe the mood and how it was created.



- Have a few **students take turns conducting new performances**, creating new and unique compositions each time—experiment with going forwards/backwards, slowly/quickly, changing the tempo, repeating sounds...



- **Record the performances; listen and reflect on the compositions by describing the soundscapes created**, e.g.:

*How did the composition change each time there was a new conductor? Why?*

*Which composition did you find the most effective? Why?*

*What was the mood communicated to you?*

*How did you feel to have your sound/piece of nature as part of a larger composition?*

*What other objects could you use to create a similar soundscape?*



## Activity No. 2: Analyzing a Natural Soundscape

These activities are designed to have students **immerse themselves in the sounds of a natural environment**, e.g., **Mud Lake in Ottawa**: <http://ncc-ccn.gc.ca/places-to-visit/parks-paths-and-parkways/mud-lake>; a woodlot, a forest, a pond—anywhere that nature is present.

Students are asked to **record the soundscape** that is present, then to **listen back to** and **analyze the sounds** according to the Fundamental Concepts and Elements of Music. Contrasting this analysis with the soundscape of an urban street setting will demonstrate the difference in the number of sounds, the dynamics of the sounds, the tempo, rhythm, pitch and timbre.

1. **Record the soundscape of a wilderness area near your school or home.** Listen to the recording and analyze what you can tell about that environment from the sounds you hear.

Identify each sound you can hear in the chosen environment/	Describe the sound, using the Music Concepts and Elements.  [see Elements Chart below]	What is the mood or feeling created when you hear the sound?
e.g. water lapping on the shore	Even rhythmic sound 'splash' 'piano'	Peaceful, relaxing, feels like breathing in and out

2. What is the **overall feeling or mood of this environmental soundscape**? Why? What contributes to that overall mood?

3. Why should we **preserve the natural soundscapes**? How can we preserve these soundscapes?

4. **Record a different environment**, e.g., city street. Complete the same chart and questions.

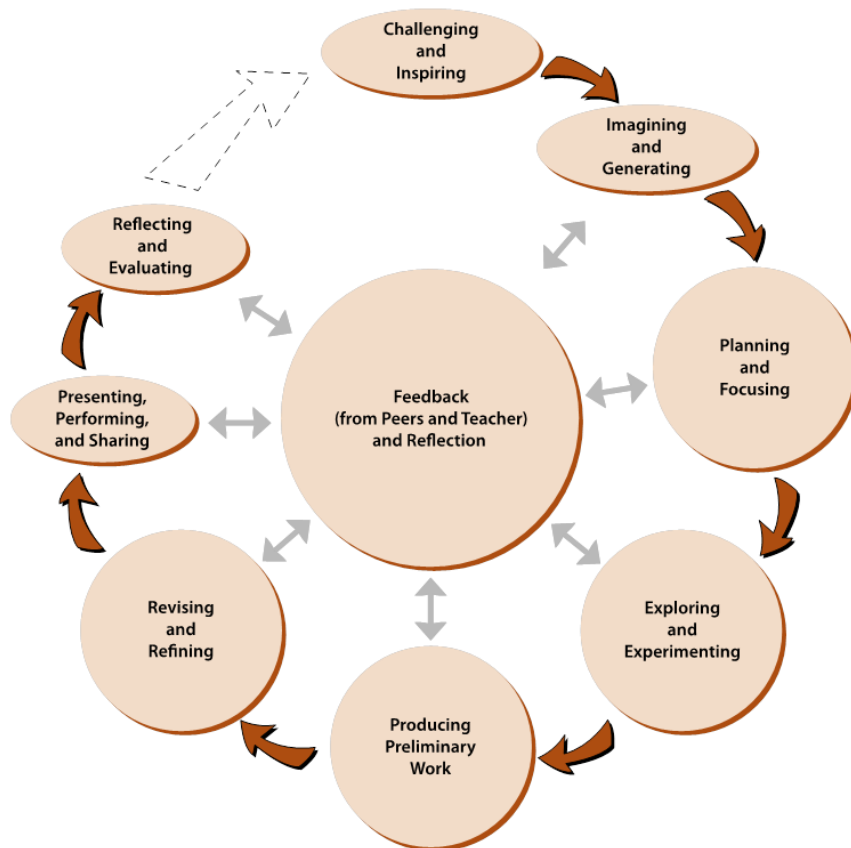
### Music Fundamental Concepts and Elements

<b>Duration</b> <b>Beat</b> <ul style="list-style-type: none"> <li>steady beat/no beat</li> <li>strong/weak</li> </ul> <b>Metre</b> <ul style="list-style-type: none"> <li>duple, triple, compound</li> <li>changing</li> </ul> <b>Tempo</b> <ul style="list-style-type: none"> <li>fast, slow, changing</li> </ul> <b>Rhythm</b> <ul style="list-style-type: none"> <li>long/short notes &amp; rests</li> <li>even/uneven patterns</li> <li>rhythmic ostinato: repeated rhythm patterns)</li> </ul>	<b>Pitch and Melody</b> <ul style="list-style-type: none"> <li>high/low</li> <li>upward/downward movement</li> <li>glissando</li> <li>ascending/descending melodic patterns</li> <li>steps, skips, repeated notes</li> <li>melodic contour: flat/wavy/jagged...</li> <li>tonality: major/minor</li> <li>melodic ostinato</li> </ul>	<b>Timbre - Orchestral</b> <ul style="list-style-type: none"> <li>strings</li> <li>brass</li> <li>woodwind</li> <li>percussion: untuned - woodblocks, triangles, snare drums...</li> <li>tuned percussion: timpani, xylophone, marimba, glockenspiel...</li> </ul>
<b>Expressive Controls</b> <b>Dynamics</b> <ul style="list-style-type: none"> <li>loud (forte)/soft (piano)/ moderately loud/soft...</li> <li>gradually changing (crescendo/decrescendo)</li> </ul> <b>Tempo</b> <ul style="list-style-type: none"> <li>fast, slow, changing</li> </ul> <b>Articulation</b> <ul style="list-style-type: none"> <li>staccato (detached)</li> <li>legato (smooth)</li> </ul> <b>Elements combine to create mood</b> <ul style="list-style-type: none"> <li>lively, happy, frantic, sad, joyful, relaxed, gentle, agitated, angry...</li> </ul>	<b>Harmony/Texture</b> <ul style="list-style-type: none"> <li>thick/thin</li> <li>few/many resting places</li> <li>melody alone (monophonic)</li> <li>one melody with accompaniment (homophonic)</li> <li>more than one melody together (polyphonic)</li> <li>simultaneous playing or singing of two or more versions of a melody (heterophony)</li> <li>consonant/dissonant</li> <li>repeated melodic patterns (ostinato)</li> </ul>	<b>Form</b> <ul style="list-style-type: none"> <li>repetition/contrast</li> <li>sections/phrases</li> <li>unity</li> <li>introduction/verse/chorus</li> <li>round/canon</li> <li>AB, ABA, ABACA (rondo)</li> <li>theme and variation</li> </ul>

## Activity No. 3: Creating Music that Represents Nature Sounds with Graphic Scores

In this activity, **students create a music composition** with any available sound sources, and devise their own notation, called “**graphic notation**” to record their ideas. Students **perform** their compositions, and **reflect** on the effective elements of each performance. The **Creative Process** graphic from the Ontario Music Curriculum should be posted and referred to throughout this lesson.

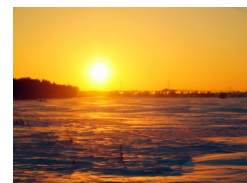
*The Creative Process*



In small groups, **compose a short piece of music** (20 seconds to 60 seconds) to **represent a sunrise**. Refer to the *Creative Process* and how it will guide the compositions.

Consider **sound sources available**:

Voices, body percussion, found sounds (e.g. pencils tapping desks, scraping backs of chairs, shaking pencil cases, etc.), boom whackers, recorders, non-pitched percussion instruments, xylophones, metallophones, glockenspiels, strings, woodwind instruments.



**Explore the sounds** that can be made with your sound sources;

**Choose which sounds and their order to represent the sunrise**, e.g., begin with slow rubbing of woodblocks, then play a bass xylophone slowly from the lowest note to the highest note, followed by a burst of high-pitched sounds playing on glockenspiels, recorders, triangles...

**Create a graphic score of your composition that the group can follow to perform it**, e.g., (this score gives information about when the sounds are high, low, random, rising, falling, etc. Create any other symbols that would help you remember your sound)



## Activity No. 3: Creating Music that Represents Nature Sounds with Graphic Scores (continued)

**Rehearse your preliminary performance of the composition.**

### **Reflect on the performance:**

- Did it feel like a sunrise? Why?
- What could be improved?
- Is the order of sounds effective?
- Do you need to add more dynamics to the performance?
- Discuss ideas with the group, then revise your graphic score and refine the performance.



**Share the performance with another group.** Give constructive feedback about the performances. Revise and refine again, preparing for the final sharing with the class.

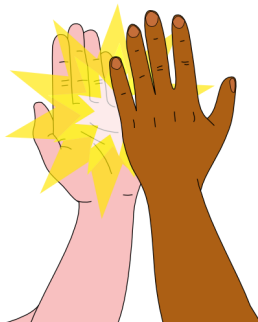
**All groups perform their compositions.**



### **Respond to each group's composition by commenting on:**

- The sound sources chosen
- How the composition was constructed
- How effective it was to represent the sunrise
- The use of music elements vocabulary to describe each aspect of the compositions.

**Write a reflection about how well your group used the *Creative Process*, and how you could improve the process another time.**





## Activity No. 4: J.-S. Bach's Violin Concerto in A minor, first movement, BWV 1041

Listen to and view J.-S. Bach's piece *Violin Concerto in A minor, 1st movement, BWV 1041* performed by *Lara St. John*, accompanied by a graphical score by Stephen Malinowski:

<https://www.youtube.com/watch?v=tbWqPnRbq3M>

Divide a blank paper into **4 sections** to create an *Analysis Page*, then label each section:

1. Pitch-Melody    2. Duration-Rhythm    3. Texture-Harmony    4. Description

**Listen/view from 00:00 – 00:30** two or three times and fill in the first 3 sections of the page

Stop the video a few times and discuss:

- The use of colour in the graphical score (representing different timbres/instruments);
- Patterns that can be seen (e.g. descending melodic patterns, notes moving by step, notes moving by skips...);
- What the squares vs. rectangles represent (the length of notes-rhythm) seen;
- How there are more than one pitch playing throughout this section creating a thick texture and harmony in the minor key.

Jot a description idea about the piece in the 4<sup>th</sup> section.



**Listen/view from 00:30 -00:40**

Identify the solo violin part, which is part of the 'concerto' form.

- View the black dots that represent this part, and
- Identify how the melody has several sequences, which are patterns of pitches that are repeated at different pitches.
- Using a different pencil crayon colour, write information on the *Analysis Page* about this section.

**Listen/view from 00:40 to the remainder of the piece**

- Using a new pencil crayon colour, continue to add information to the *Analysis Page*.
- In the 4<sup>th</sup> square: ideas about how J.S. Bach added interest to the solo violin and to the accompanying string parts, e.g. with dynamics, repetition,
- How the solo violin parts intersected with the accompanying parts, the changes in texture, the minor key of the piece, long notes contrasting with very short notes that make the piece feel exciting, as if something is to happen.

**In the 4<sup>th</sup> section**, write descriptive words about the piece.

- Share and discuss ideas with a partner or a small group.
- Add further descriptive words to the *Analysis Page*.
- Respond to the listening and viewing of this piece of music. How does it make you feel? Why?
- What kind of story/movie would this piece be an effective soundtrack for? Why?



**Research about J.S. Bach and why he wrote his music, what influences his music has had, etc.**  
[refer to Program Notes on page 13]

**Watch in the concert for how the musicians 'change' this piece of music!**

## Activity No. 5: R. Strauss' Also Sprach Zarathustra — The Movie Soundtrack

Listen to and view the opening of *Also Sprach Zarathustra*:

<https://www.youtube.com/watch?v=Szdziw4tI9o>

Jot down what you think the **composer Richard Strauss is imagining** when he wrote this piece of music.

After writing your ideas down, **identify what in the music made you think of that idea**, e.g., a giant egg is being lifted, cracked, opened and cooked: the music was ascending, with loud intervals of timpani sounds, then it is triumphant sounding when the eggs are cooked — the music has long notes that rise again, getting louder and louder with more and more instruments.



View a video created by a university student to show this piece visually with a listening map “*Also Sprach Zarathustra: Sonnenaufgang* Listening Map :

[https://www.youtube.com/watch?v=Q\\_16fZ3E82k](https://www.youtube.com/watch?v=Q_16fZ3E82k)

**Discuss** how effective the **listening map** is to **describing** the form (structure) and timbre (instruments) of this piece of music.

Identify the huge leaps in the opening notes of the melody!

Research further about this piece of music with the blog:

<https://muswrite.blogspot.ca/2012/02/strauss-also-sprach-zarathustra.html>

Discuss the ideas in the article.



## Activity No. 5: Also Sprach Zarathustra, The Movie Soundtrack (continued)



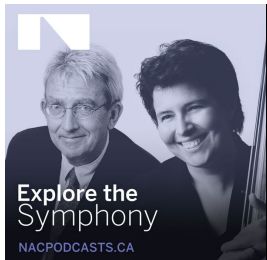
Read about how conductor [Marin Alsop](https://www.npr.org/2012/01/14/145168801/alsop-sprach-zarathustra-the-conductor-decodes-strauss-iconic-tone-poem) researches and thinks about a piece of music she is going to conduct: <https://www.npr.org/2012/01/14/145168801/alsop-sprach-zarathustra-the-conductor-decodes-strauss-iconic-tone-poem> :

[Excerpt of the article:]

*"... the opening of Strauss' Zarathustra is one of the most recognizable musical excerpts in history. That unto itself always fascinates me: What makes a piece of music resonate with so many people? It can't just be its commercial associations after the fact, because those associations invariably reference the emotional underpinnings of the music itself. [The conductor is referring to the film '2001: A Space Odyssey']. I decided to try to analyze what makes this opening so universal.*

*The piece starts in the depths of the orchestra, almost out of the range of human hearing. Then the trumpets enter in unison, playing a fanfare-like figure based on perfect intervals. Perfect intervals give a sense of possibility and vastness. I immediately think of Copland's Fanfare for the Common Man, which opens with the exact same perfect intervals played by unison trumpets. The effects are identical: strength, breadth, optimism, possibility. Repetition is important, and Strauss repeats the opening fanfare three times, each time gaining in intensity, until it finally breaks free and arrives at a majestic cadence in the key of C major — the universal key. It has no sharps or flats (it uses only the white keys on the piano), and is enormously resonant. We feel C major in a very primal way as human beings."*

- How is this description of the music similar to the one you wrote? How is it different?
- Why do you think that movie director **Stanley Kubrick** chose '**Thus Spoke Zarathustra**' (and alternative name for Also Sprach Zarathustra) as the opening music soundtrack for his 1968 movie "**2001 A Space Odyssey**"?
- Watch the opening scene: <https://www.youtube.com/watch?v=r3tZ9leqm9Q>
- Imagine another scene that you could create and use this same music as the soundtrack...



Learn more about Richard Strauss' piece in the NAC Podcast  
EXPLORE THE SYMPHONY; Episode 30: Richard Strauss (October 23, 2013):

<https://nac-cna.ca/en/podcasts/episode/episode-30-richard-strauss>

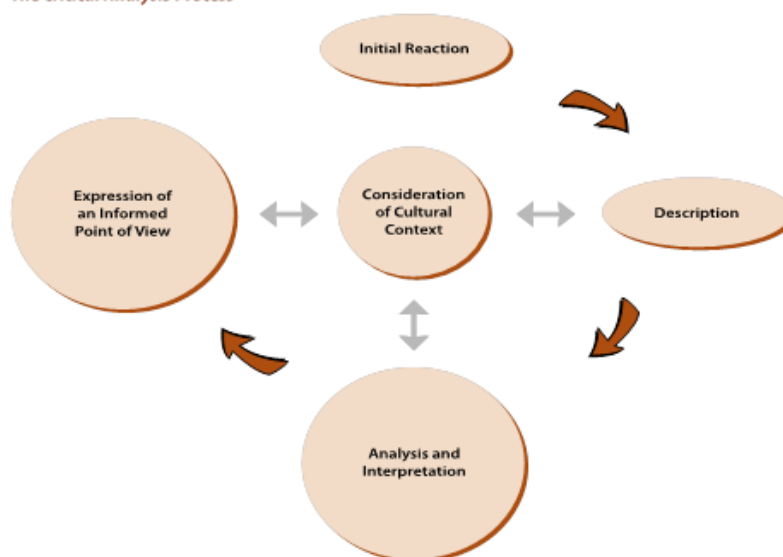
**NAC**musicbox.ca  
Archival Recordings of the National Arts Centre Orchestra

Logon to [NACMusicBox.ca](https://nacmusicbox.ca) **TIMELINE**  
and listen to orchestral works performed by the NAC Orchestra!

# Activity No. 6: Ludwig van Beethoven — Symphony No. 6 in F major, Op. 68 “Pastoral”, IV. Thunderstorm and Tempest

## Create a Musical Story!

*The Critical Analysis Process*



Listening Story Page      Title: _____      Name: _____				
Excerpt	Initial Reaction: How do you feel?	Description: What is happening in the story?	Analysis: How are the elements used?	Interpretation: Why did your story develop? How did the music communicate to you?
1				
2				
3				
4				

- Copy the Listening Story Page for each student.
- **Listen** to approximately 1 minute of the recording at a time [ <https://www.youtube.com/watch?v=-ZVdVuskkKU> ], and **complete the chart** with ideas in each column.
- Encourage students to work alone, **communicating their own thoughts, feelings and ideas**. Have an elements and concepts chart available for students' reference.
- After students have completed these stages of the *Critical Analysis Process*, have them **write a story** generated from the Pastoral Symphony.



## Activity No. 6: Ludwig van Beethoven — Symphony No. 6 in F major, Op. 68 “Pastoral”, IV. Thunderstorm and Tempest

Give students some of the **background about this piece of music:**

E.g., The ‘Pastoral Symphony’ was completed in 1808 by Beethoven who loved to go for walks in the Vienna countryside. He would sketch ideas and pictures of things that inspired him while out appreciating nature. The ‘Storm’ is another name given to this fourth movement of Symphony No. 6, and it is an example of ‘programme music’, or music that tells a story. Beethoven had this story in mind:



- At the beginning you hear an **approaching storm played by the strings** – first there are **light gusts of wind, and drops of rain played by the violins**
- **Thunder rolls in**, there are high winds and sheets of rain
- Beethoven describes the **images of a storm** for him, as well as the **emotions of awe and fear** that a fierce storm brings about
- The **storm fades slowly** and thunder can still be heard in the distance.

**Compare student stories to the one that Beethoven** is said to have imagined. Celebrate the differences and the similarities!

To complete the *Critical Analysis Process*, have **students write a paragraph** about whether they feel that Beethoven was successful in communicating his story to listeners. Why? Why not? Why has a piece like this continued to be heard in our society today?

**Research about Beethoven by consulting the “Beethoven Resource Teacher kit” from ArtsAlive:** [http://artsalive.ca/pdf/mus/beethoven\\_e.pdf](http://artsalive.ca/pdf/mus/beethoven_e.pdf)

Use the *Creative Process* to **compose your own storm or weather story in music**.

Draw 8 boxes, and **devise notation** to ‘write down’ your ideas and create a soundscape.

Use **any sound sources available** to you, including voices, body percussion, found sounds, non-pitched and pitched percussion instruments, boomwhackers, ukuleles, band instruments, string instruments, etc. (timbre).

**Consider** pitch, duration, timbre, articulation and dynamics in your composition.

**Share each others’ stories.** Listen to other musical stories by famous composers and compare the musical ideas.



# SYMPHONY HACK LAB

## Percussionality

Time: 15 Minutes  
Difficulty: Easy

Thought to be the oldest type of instrument ever invented, percussion instruments provide a tempo (or beat) to the melody. Experiment with different materials and play to the beat of your own drum!

### What You Need:

- Plastic cups and containers of varying sizes
- Balloons
- Scissors
- Tape
- Cardboard

### Make It:

1. Line up your plastic cups in whichever order you would like.
2. Cut the tip off a balloon, and stretch it over the rim of the cup to make a drum.
3. Tape the balloon in place.
4. Repeat with each remaining cup.
5. Cut a strip of cardboard and attach all of the cups to it with tape.

### Test it:

Strike each drum. Which makes the highest noise? Which makes the lowest? Play on various parts of your instrument by striking the balloon, the sides or underneath the containers, does it make the same type of sound?

### Explain It:

As you hit the drum, the rubber vibrates. This releases sound waves that you can hear!

### See It In Use:

A percussion instrument is anything that you strike to make noise. The drum kit in your favourite band is made in a similar way – just with different materials!

### Hack this template:

Try changing up the design. You can add parts, change anything... it's all up to you! Try putting things in the cups, attaching the drums in different ways, or making a mallet to strike the drums with. Can you add a cymbal-like contraption to your design?



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Canada is our stage.  
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## Activity No. 8: String-o-lin

# SYMPHONY HACK LAB

## String-o-lin

**Time: 15 Minutes**  
**Difficulty: Advance**

Make a string instrument out of cardboard! The NAC Orchestra's includes 39 string instruments, each one adding a new sound to the symphony.

### What You Need:

- Thick pieces of cardboard, paper letter size
- 3 elastics
- 12 fasteners
- Utility blade
- Glue gun
- Pencil
- Poking instrument, such as a screwdriver or a pen



Safety first! Ask an adult to help you use these tools.

### Make It:

1. Print the template below.
2. Trace the template on 3 pieces of cardboard.
3. Cut the centre circle out carefully using the utility blade
4. Glue the 3 templates on top of each other with the glue gun. Be careful to align them well. This will become your frame.
5. Take your 3 rectangles and glue them on top of each other
6. Glue your rectangle on the frame
7. Poke 6 holes at the top of your instrument frame, following the template.
8. Poke the remaining 6 holes that follow the slanted side of the frame
9. Place a fastener in each hole, secure them at the back of the frame
10. Take an elastic and roll it around 2 top and 2 corresponding lower fasteners at the same time.

### Test it:

That is it, your string instrument is ready to be played! Make sure the elastic is tight by wrapping it around the fastener's head a few times if required.

### Explain It:

The tighter and shorter the elastic, the higher the sound it will make. This is because it vibrates at a higher frequency, sending higher-pitched notes out in the form of sound waves.

### See It In Use:

All stringed instruments like the violin, guitar and cello use the exact same concept to make sound – take a look at the differences in string length and tightness! Which length create the higher pitch note?

### Hack this template:

Modify the instructions and add personal touches to your instrument. Add strings, change the frame shape and size, and embellish your instrument. Can you think of other materials that you could use instead of those suggested? Don't be discouraged if your creation doesn't come up as you imagined on your first try. With each construction, you will discover different ways to make music.



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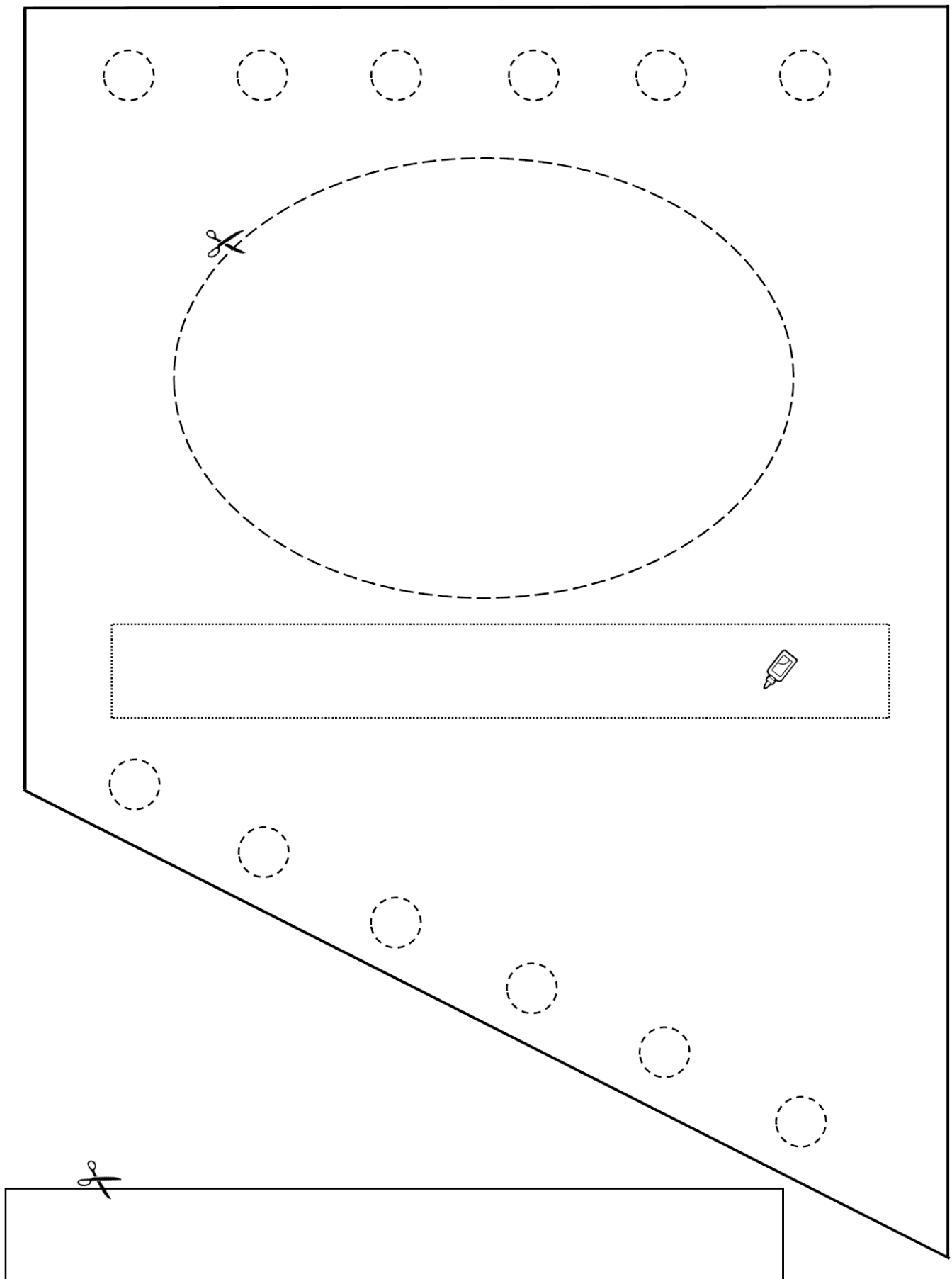


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## Activity No. 8: String-o-lin (continued)





# SYMPHONY HACK LAB

## Whistl-o-phone

Time: 15 Minutes  
Difficulty: Intermediate

Nothing completes an orchestra like a swelling woodwind section, and now you have the chance to make your own 'woodwind' instrument. Who needs a saxophone when you have paper, Popsicle sticks and a little creativity?

### What You Need:

- Two Popsicle sticks
- Pencil
- Two elastic bands
- Construction paper
- Glue
- Small piece of cardboard or a toothpick
- Scissors

### Make It:

1. Cut your piece of cardboard or toothpick into two small pieces about the size of a tic-tac. These will be spacers.
2. Place one piece about 2 cm away from the end of the Popsicle stick, and glue it there. Repeat on the other side with the second piece.
3. Cut a thin strip of construction paper a bit longer than a Popsicle stick.
4. Sandwich the paper strip between the two Popsicle sticks, with the pieces of cardboard or paper on the inside.
5. Wrap an elastic tightly around the Popsicle stick sandwich in line with the spacers. Repeat on the other side. Verify that the paper on the inside is still lined up and flat.
6. Turn it on its side and blow into it like a harmonica. Does it make noise?
7. Decorate!
8. Bonus step: Add an amplifier. Hot glue a plastic cup on the sticks, place it perpendicular so that the air you blow goes into the cup.

### Test it:

Blow in, and hear the noise it makes. Can you make it louder, softer, higher or lower?

### Explain It:

As the air passes over the paper strip, it causes it to vibrate. This vibration makes the loud noise you hear.

### See It In Use:

Woodwind instruments use the exact same concept to make sound – they just use a wooden reed instead of a paper strip to vibrate and make noise!

### Hack this template:

Try mixing up the design. Add parts, make the sticks smaller or longer. Test another material to vibrate such as a candy wrapper, or try another type or size of amplifier. Modify anything... it's all up to you!



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## Reflection and Response About the Concert

Students write a response and reflection about the concert, using a few of these guiding questions as starting points:

- ★ What was your *favourite* moment in the concert? Why?
- ★ What was your *least favourite* moment in the concert? Why?
- ★ What surprised you?
- ★ Which piece(s) would you choose to hear again? Why?
- ★ Describe your emotions during a specific piece. Why do you think you felt that way?



Share and discuss some of the student reflections. Have students seated in a circle so they can see and hear each other, and encourage a positive and safe classroom climate where they will feel comfortable sharing their thoughts, feelings and ideas (answers are all acceptable as long as the student can give supporting evidence from the concert).

Try to answer questions students might have about certain aspects of the performance, or together plan to complete further research and exploration.

## Concert Etiquette: Preparing students for their symphony experience

### Teaching Objective

Students will examine, discuss and practice appropriate concert behaviour in different settings.

### Preparatory Activities

1. Ask students to list places or situations where they might be part of an audience. Provide examples, such as a rock concert, hockey game, movie theatre, etc. Create a list of answers that everyone can see.
2. Discuss the ways that audience behaviour may vary in the different situations listed. Discuss how different venues or activities have varied expectations for audience behaviour. Discuss how an audience can positively or negatively affect the performer/athlete/entertainment and other audience members.



### Teaching Sequence

1. Assign a group of two or more students to act out behaviour that would occur at various venues at the front of the classroom. For example, have two students pretend to be playing hockey. Or, have the students perform a musical piece they've learned.
2. Instruct the rest of the class to pretend that they are the audience. With each group that performs, prompt the audience to act in various ways, covering a range of levels of appropriateness and respectfulness.
3. Have each group discuss they reacted to the audience while performing. How did the audience's actions affect how they felt and how well they performed?
4. A symphony hall is built to maximize the acoustics of the sounds made within it. Discuss how this would affect the sounds made by the audience.

### Culminating Activity

Talk to the students about the upcoming concert at the symphony. (Refer to “**Know Before You Go**” on the last page of this guide). Discuss with them what they should expect to happen and how they can appropriately show their appreciation and respect for the symphony.

### Evaluation

Were students able to understand how and why audience behaviour might be different in different settings and venues? Did they understand the importance of their role as an audience member? Do they understand their role as an audience member of a symphony orchestra?

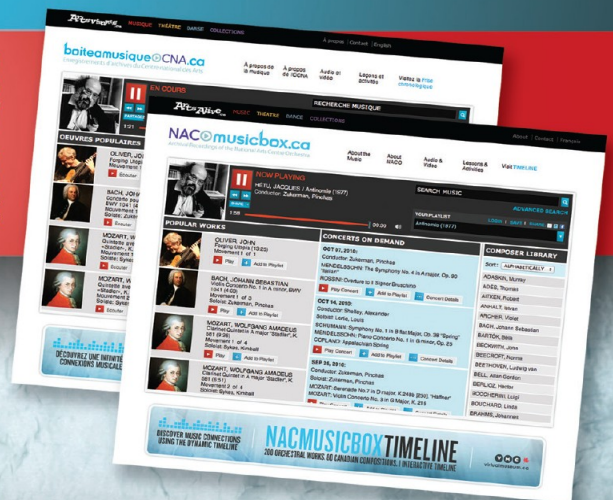
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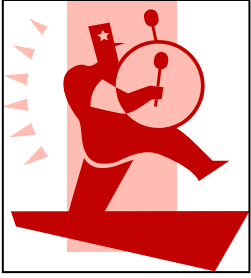
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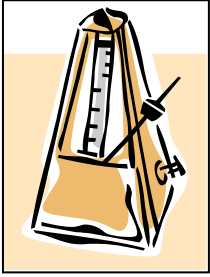


# Listening Guide



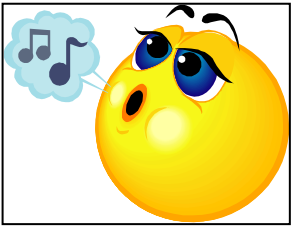
## BEAT

Is there a strong pulse (like walking), or little sense of a beat, (like floating)?  
Is the speed (tempo): fast (allegro), medium (moderato), or slow (adagio)?



## METER/TIME SIGNATURE

2/4, 3/4, 4/4, 6/8 are most common. Listen for the strong beat, then find the grouping of beats in 2s, 3s 4s. Try conducting in 2 (down/up) or 3 (triangle) to feel duple or triple time.



## MELODY

Is the tune memorable? Does it have leaping from high to low (disjunct) or notes moving in close steps (conjunct)? Is the playing smooth (legato) or detached playing, like hot potato (staccato)?



## HARMONY

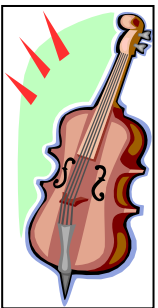
Is more than one pitch sounding at the same time (example do + mi + so, or the “I chord”). One person singing alone creates unison, not harmony! Are the combined sounds modern, jazzy, more traditional?



## DYNAMICS

How dramatic is the music? Are there loud and soft sections? The music terms (and symbols) are:

- *pianissimo* (*pp*) – very soft
- *piano* (*p*) – soft
- *mezzo piano/mezzo forte* (*mp, mf*) – medium soft/medium loud
- *forte* (*f*) – loud
- *fortissimo* (*ff*) – very loud



## TIMBRE

Can you identify what is making the music: voice (male/female, adult/child), woodwinds, brass, strings, or percussion?



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NACmusicbox.ca TIMELINE has hundreds of music recordings from the Baroque period to the 21<sup>st</sup> century, and resources for teachers, students and music fans.

Offered through the award-winning ArtsAlive.ca website, TIMELINE is a multimedia tool which visually maps works performed by the NAC Orchestra on an interactive timeline spanning 300 years. Each work has an accompanying concert program, a composer biography and contextual trivia. For teachers, there are ready-to-use lesson plans, learning activities, listening exercises and much more!



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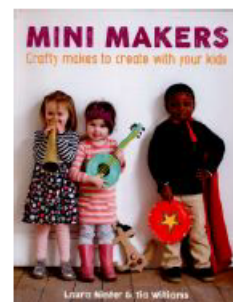
## Symphony Hack Lab / Le labo symphonique

You can browse more books online and order them from the OPL catalogue here /  
Vous pouvez voir plus de livres en ligne et les commander sur le catalogue de la BPO  
à <https://tinyurl.com/ya45pvx4>

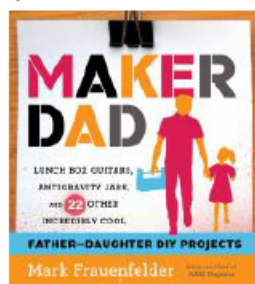


Cogheart  
Bunzl, Peter  
2016

Mini Makers  
Crafty Makes to Create With Your Kids  
Minter, Laura  
2016

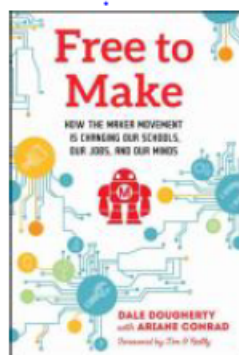


Tinkerlab  
A Hands-on Guide for Little Inventors  
2014



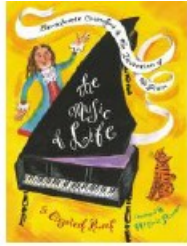
Maker Dad  
Lunch Box Guitars, Antigravity Jars and 22 Other Incredibly Cool Father-daughter DIY Projects  
Frauenfelder, Mark  
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Make your Own Musical Instruments  
D'Cruz, Anna Marie  
2009



Free to Make  
How the Maker Movement is Changing Our Schools, Our Jobs and Our minds  
Dale Dougherty  
2016

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Bartolomeo Cristofori & the Invention of the Piano  
Rusch, Elizabeth  
2017



Son et Lumière  
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2013



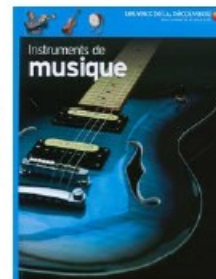
Trop facile, la musique!  
Laurens, Claire  
2013



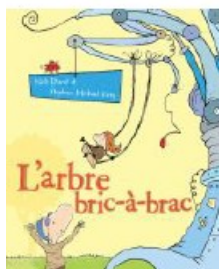
Expériences stupéfiantes Tome 2  
2013



Musique pas bête  
pour les 7 à 107 ans  
Lafitte, Nicolas  
2016



Instruments de musique  
Ardley, Neil  
2013



L'arbre bric-à-brac  
Bland, Nick  
2013



# About the National Arts Centre and the Performers



Canada's National Arts Centre

This picture shows the new National Arts Centre after renovations in 2017

Situated in the heart of the nation's capital across Confederation Square from Parliament Hill in Ottawa Ontario, the **National Arts Centre** is among the largest performing arts complexes in Canada. It is unique as the only multidisciplinary, bilingual performing arts centre in North America and features one of the largest stages on the continent.

Officially opened on June 2, 1969, the **National Arts Centre** was a key institution created by Prime Minister Lester B. Pearson as a Centennial project of the federal government. Built in the shape of a hexagon, the design became the architectural leitmotif for Canada's premier performing arts centre. **The National Arts Centre was designated a national historic site of Canada in 2013.**

Designed by Fred Lebensold (ARCOP Design), one of North America's foremost theatre designers, the building was widely praised as a twentieth century architectural landmark. Of fundamental importance to the creators of the NAC was the belief that, beautiful and functional as the complex was, it would need more than bricks and mortar and, in the words of Jean Gascon, former Director of the NAC's French Theatre Department (1977-1983), "it would need a heart that beats."

A program to incorporate visual arts into the fabric of the building has resulted in the creation of a unique permanent art collection of international and Canadian contemporary art. Pieces include special commissions such as *Homage to RFK* (mural) by internationally acclaimed Canadian contemporary artist William Ronald, *The Three Graces* by Ossip Zadkine and a large freestanding untitled bronze sculpture by Charles Daudelin. In 1997, the NAC collaborated with the Art Bank of the Canada Council for the Arts to install over 130 pieces of Canadian contemporary art.

**Glenn Gould's beloved piano**, Steinway CD 318 returns to permanent display at the NAC in September 2017. Acquired from Library and Archives Canada in June 2012, this significant cultural artifact is accompanied with an exhibition about Gould's life including an award-winning film produced by Canadian filmmaker Peter Raymont entitled "Genius Within: The Inner Life of Glenn Gould."

The NAC is home to four different performance spaces, each with its own unique characteristics. **Southam Hall** is home to the National Arts Centre Orchestra, to the largest film screen in the country and to the Micheline Beauchemin Curtain.

Today, the NAC works with countless artists, both emerging and established, from across Canada and around the world, and collaborates with scores of other arts organizations across the country.



# Canada's National Arts Centre Orchestra



This vibrant orchestra has an acclaimed history of touring, recording, and commissioning Canadian works. **Canada's NAC Orchestra**, under the direction of renowned conductor, cellist and pianist **Alexander Shelley**, draws accolades both abroad and at home in Ottawa, where the Orchestra gives over 100 performances each year.



**Alexander Shelley**  
Music Director,  
NAC Orchestra

The NAC Orchestra was founded in 1969 as the resident orchestra of the newly opened National Arts Centre, with Jean-Marie Beaudet as Director of Music and Mario Bernardi as founding conductor and (from 1971) Music Director until 1982. He was succeeded by Franco Mannino (1982-1987), Gabriel Chmura (1987-1990), Trevor Pinnock (1991-1997) and Pinchas Zukerman (1998-2015). In September 2015 **Alexander Shelley** took up the mantle as Music Director, leading a new era for the National Arts Centre's Orchestra.

Inspiring future generations of musicians and audiences has always been central to Shelley's work. In 2014, he conducted an extended tour of Germany with the Bundesjugendorchester and Bundesjugendballett (German youth orchestras). In 2001, Shelley created "440Hz", an innovative concert series involving prominent German television, stage and musical personalities, which was a major initiative to attract young adults to the concert hall.

Born in the UK in 1979, Shelley first gained widespread attention when he was unanimously awarded first prize at the 2005 Leeds Conductors Competition and was described as "the most exciting and gifted young conductor to have taken this highly prestigious award. His conducting technique is immaculate, everything crystal clear and a tool to his inborn musicality." Since then he has been in demand from orchestras around the world.

In addition to concerts at the NAC, tours are undertaken across Canada and around the world. Education is a vital element, ranging from masterclasses and student matinees to sectional rehearsals with youth and community orchestras. Popular

Teacher Resource Kits have been developed, and the public can follow each tour through interactive websites, now archived at [ArtsAlive.ca](http://ArtsAlive.ca).

The NAC Orchestra has 40 recordings to its name and has commissioned more than 90 original Canadian works.

## ALAIN TRUDEL, NAC Orchestra Principal Youth and Family Conductor



Photo: Pierre Racine, Yamada

Praised by *La Presse* for his “immense talent as conductor, musician and performer”, Canadian **Alain Trudel** is Principal Youth and Family Conductor of the National Arts Centre Orchestra, Music Director of the Orchestre symphonique de Laval and Principal Guest Conductor of the Ottawa Symphony Orchestra. Trudel was also the CBC Radio Orchestra conductor, taking the orchestra to new heights of artistic quality, as well as public and critical acclaim. He has conducted every major orchestra in Canada as well as orchestras in the UK, USA, Sweden, Italy, Russia, Japan, Hong Kong, Malaysia and Brazil.

Always committed to future generations of musicians, Trudel has served as Conductor of the Toronto Symphony Youth Orchestra (2004-2012) and has, on multiple occasions, been invited to conduct the National Youth Orchestra of Canada, whose recording of Mahler and Stravinsky works earned nominations at the Juno Awards.

From 2011 to 2015, Trudel was professor of opera and orchestra at the Western University, a function he now holds as visiting professor at the University of Ottawa.

First known to the public as “the Jascha Heifetz of the trombone” (*Le Monde de la musique*), Alain Trudel has been a guest soloist with orchestras worldwide including the Orchestre Philharmonique de Radio-France, Hong Kong Philharmonic, Austrian Radio Orchestra, Festival Musica Strasbourg (France), Klangbogen Festival (Vienna), Akiyoshidai and Hamamatsu festivals (Japan).

Alain is also a respected composer with works being performed across America and in Asia.

Alain Trudel was the first Canadian to be named Yamaha International Artist, and is the recipient of numerous awards including the Virginia Parker Prize, the Charles Cros Prize (France), the Opus Prize and the Heinz Unger Award. He has been named Ambassador of Canadian Music by the Canadian Music Centre and received a Queen’s Diamond Jubilee Medal in 2012.

Website: [www.alaintrudel.com](http://www.alaintrudel.com)

## Dr. ANDREW PELLING, co-host, director of pHacktory, TED Senior Fellow



Photo: Colin Rowe

Scientist, professor, entrepreneur and TED Fellow **Andrew Pelling** has built a career on unapologetic curiosity, creativity and serendipity. He is a professor and Canada Research Chair at the University of Ottawa, where he founded and directs a curiosity-driven research lab that brings together artists, scientists, social scientists and engineers.

The lab uses low-cost, open source materials and methods to explore speculative living technologies of the future. He has, for instance, created human body parts made from plants and grown living skins on LEGOs, innovations with the potential to replace prohibitively expensive commercial biomaterials.

Pelling is also the co-founder and CTO of [Spiderwort Inc.](http://Spiderwort Inc.), a mission driven company developing open source platforms to enable the widespread and global adoption of biological research in all environments and economic contexts. Most recently, he founded pHacktory, a street-level research lab in Ottawa that amplifies community ideas through a potent mixture of craft, serendipity and curiosity.

Pelling's work has been in the international media spotlight for many years, with recognition in outlets such as *Wired*, *Huffington Post*, *NPR*, *Scientific American*, *Popular Science*, *BBC*, *Der Spiegel*, *Deutsche Welle* and others, as well as numerous highlights in the Canadian media and Scientific media. He was named a TED Fellow in 2016.

Websites: [www.pellinglab.net](http://www.pellinglab.net) [www.phacktory.com](http://www.phacktory.com)



## CATHERINE EMOND, co-host / Education and Interpretation Officer, Canada Science and Technology Museum



**Catherine Emond** has found her passion for informal learning in museums.

She has been working at the Canada Science and Technology Museum for over 10 years.

Testing, playing and crafting are a large part of Catherine's typical day at work. This is how she creates ingenious activities for Exploratek, the Museum's maker studio.

Her main inspiration comes from her two lovely girls and from visitors curiosity and engagement.

**Website:** Canada Science and Technology Museum: [ingeniumcanada.org](http://ingeniumcanada.org)

## ADRIAN ANANTAWAN, violin



Canadian born violinist and educator **Adrian Anantawan** holds degrees from the Curtis Institute of Music, Yale University and Harvard Graduate School of Education. As a violinist, he has studied with Itzhak Perlman, Pinchas Zukerman, and Anne-Sophie Mutter; his academic work in education was supervised by Howard Gardner.

Memorable moments include performances at the White House, the Opening Ceremonies of the Athens and Vancouver Olympic Games and the United Nations. He has played for the late Christopher Reeve and for Pope John Paul II, and His Holiness the Dalai Lama.

Adrian has performed extensively in Canada as a soloist with the Orchestras of Toronto, Nova Scotia, Winnipeg, Saskatoon, Montreal, Edmonton and Vancouver. He has also presented feature recitals at the Aspen Music Festival, Weill Recital Hall at Carnegie Hall and the White House. He has also represented Canada as a cultural ambassador in the 2006 Athens Olympics, and was a feature performer at the Vancouver 2010 Winter Olympics Opening Ceremonies.

Active within his community, Adrian helped to create the Virtual Chamber Music Initiative at the Holland Bloorview Kids Rehab Centre. The cross-collaborative project brings researchers, musicians, doctors and educators together to develop adaptive musical instruments capable of being played by young person with disabilities within a chamber music setting.

From 2012-2016, he was the co-director of Music at the Conservatory Lab Charter School, serving students from the Boston area, kindergarten through grade eight. Adrian is a Juno Award nominee, a member of the Terry Fox Hall of Fame, and was awarded a Diamond Jubilee Medal from Her Majesty Queen Elizabeth II for his contributions to the Commonwealth.

**Website:** [www.adriananantawa.com](http://www.adriananantawa.com)

## JESSE STEWART, composer / percussion



Photo: Hasi Eldib

**Jesse Stewart** is an award-winning composer, percussionist, visual artist, researcher, educator, community worker, and equality advocate.

He has performed and recorded with musical luminaries including Pauline Oliveros, Hamid Drake, William Parker, Joe McPhee, David Mott, Stretch Orchestra, Michael Snow, and many others. He has been widely commissioned as a composer and artist.

He is a professor of music in Carleton University's School for Studies in Art and Culture and an adjunct professor in the Visual Arts program at the University of Ottawa.

He is the recipient of numerous awards and honours including the 2012 Juno award for "Instrumental Album of the Year," a Terry Fox Humanitarian Award, and the Order of Ottawa. In 2017, he was one of five educators in the world honoured with the "D2L Innovation Award in Teaching and Learning."

**Website:** [www.jessestewart.ca](http://www.jessestewart.ca)

## REYNALIZ HERRERA, percussion



**Reynaliz Herrera** is a Mexican born musician, percussionist, composer and educator. She began pursuing music at the Escuela Superior de Musica y Danza with Noel Savon, and graduated from The University of Ottawa where she studied with Ian Bernard, former NACO timpanist and Reynaliz's mentor, and from The Boston Conservatory with a Master of Music under Nancy Zeltsman and Keith Aleo.

Reynaliz has performed in U.S.A, Mexico, Cuba, Canada, Spain, Italy and Germany, and has collaborated with The National Arts Centre Orchestra, OSO and OFC in Canada, and Danza Contemporanea En Concierto, Grooversity, Boston Opera Collaborative, SXSW Festival, Peabody Essex Museum, Wang Center Theatre, and Boston Science Museum.

In 2012, Reynaliz created "Ideas, Not Theories" A theatrical percussion show for unconventional instruments (such as bicycles and water) featuring her own musical works. Highlights of the show include: At NY International Fringe Festival 2015, NYU/KoSA/HLAG Day of Percussion 2016, Outside The Box Festival, Boston Children's Museum, Brooklyn Children's Museum, World Maker Faire in NY and Boston Maker Faire, ILLUMINUS Festival, ArtBeat, Lower East Side Girls Club of NY, and Festival de Musica Nueva de Monterrey.

Reynaliz has won competitions and awards including Mexico's National and State's Youth Awards, The PERCUBA International Percussion Competition in Cuba, The NACO Bursary Competition, and the MTV Latinamerica "agent of change award". **Website:** [www.ideasnottheories.com](http://www.ideasnottheories.com)

## KENNETH SIMPSON, percussion



**Kenneth Simpson**, a native of Ottawa, obtained a Bachelor of Music in Performance from the University of Ottawa in 1985 under the guidance of Ian Bernard, Timpanist of the National Arts Centre Orchestra. Further study continued over a long period with renowned teacher/performer Pierre Beluse of McGill University in Montreal. As a student, Mr. Simpson won the prestigious NACO Bursary Award in 1983, as well as the Isobel Firestone Scholarship at the University of Ottawa in 1984.

Presently Mr. Simpson is engaged as Percussionist of the National Arts Centre Orchestra, Principal Percussion of the Ottawa Symphony Orchestra and as Professor of Percussion at the University of Ottawa. Also very active in chamber music, Kenneth has made several appearances on the NAC's Music for a Sunday Afternoon, the Ottawa International Chamber Music Festival, Music and Beyond, and is a member of the Capital Brass Works.

Through the NAC, Mr. Simpson is very involved with Music in the Schools as part of the Percussion Duo "Bangers and Smash" and as clinician. He is also an endorser for Zildjian Cymbals in Boston, Mass.

**Website (NAC biography):** [nac-cna.ca/en/bio/kennethsimpson](http://nac-cna.ca/en/bio/kennethsimpson)

## JONATHAN WADE, percussion



A native of Ottawa, **Jonathan Wade** received a Bachelor of Music in percussion from the University of Ottawa where he studied with Ian Bernard and Pierre Béluse. He went on to obtain a Superior Studies diploma in orchestral repertoire for timpani from the University of Montréal under Louis Charbonneau.

Since 1982, Jonathan Wade has performed as a percussionist and timpanist with the National Arts Centre Orchestra. In 1983 he was appointed principal timpanist of the Ottawa Symphony Orchestra. Mr. Wade is heard frequently with other fine ensembles including Capital Brass Works, Thirteen Strings and the Ottawa Choral Society. He performs regularly in Music and Beyond and in the Ottawa International Chamber Music Festival.

In 2002, Jonathan Wade became professor of timpani at the University of Ottawa and was appointed head of percussion in 2006. He was the percussion instructor at the Ottawa Youth Orchestra Academy from 1986 to 2009. Jonathan is very active in the NAC's Music in the Schools program with the Bangers and Smash percussion duo and as a drummer in the Ragtime Brass sextet.

**Website (NAC biography):** [nac-cna.ca/en/bio/jonathan-wade](http://nac-cna.ca/en/bio/jonathan-wade)



## KRISTOFER MADDIGAN, percussion



**Kristofer Maddigan** is a percussionist, drummer and composer based in Toronto, Canada. Principal percussionist with the National Ballet of Canada Orchestra, Kris also performs regularly with a wide range of groups including The Toronto Symphony Orchestra, The Hannaford Street Silver Band, The National Arts Center Orchestra, The Esprit Orchestra, The Thunder-Bay Symphony, A Fantastica Batteria, The Canadian National Brass Project, and the Devah Quartet. Kris also works with numerous jazz, theatre and new music groups around the city.

Kris received his Artist's Diploma in percussion from the prestigious Glenn Gould School at the Royal Conservatory of Music in 2009. Kris has studied with Toronto Symphony members John Rudolph and David Kent, as well as jazz drummers Jim Blackley and Terry Clarke.

As a composer, Kris contributed music for the 'My Virtual Dream' project which premiered at Toronto's Nuit Blanche in 2013, and also composed the original soundtrack for the hit X-box video game Cuphead, which recently surpassed 2 million copies sold since its September 2017 release.

Website: [krismaddigan.com](http://krismaddigan.com)

## ANDREW HARRIS, percussion

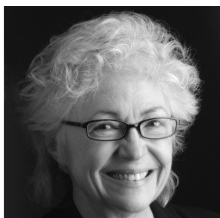


Percussionist **Andrew Harris** is based in Ottawa where he obtained Master and Bachelor of Music degrees in performance from the University of Ottawa. He performs regularly with the National Arts Centre Orchestra, Montreal Symphony Orchestra, and the Ottawa Symphony Orchestra.

Andrew has been the recipient of awards including the Harold Crabtree Award (NAC Orchestra Bursary), SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship, and the Marusia Yaworska Scholarship. He was a member of the National Youth Orchestra of Canada for two summers and has performed with ensembles including Capital Brassworks, Ottawa Choral Society, the Central Band of the Canadian Armed Forces, and various chamber groups.

Also an avid educator, Andrew enjoys instructing both privately and in group settings. He currently teaches percussion at the University of Ottawa including lessons, the percussion education course, and directing the percussion ensemble. He has been the percussion coach for the Ottawa Youth and Junior Youth Orchestras and frequently runs high school master classes and coaching sessions.

## JANE IRWIN, playwright



**Janet Irwin** has over thirty years experience in the theatre, working as director, playwright/librettist, producer, dramaturge, consultant and teacher. She has great affection for the classics, political theatre, large casts, plays for family audiences, spectacle, outdoor theatre, stories about Ottawa, new work, opera and other theatre forms wherein music is integral.

She has directed for the Great Canadian Theatre Company, NAC's English Theatre and Orchestra, Upper Canada Playhouse, Easy Street Productions, Opera Lyra Ottawa, Deluxe Hot Sauce and Third Wall Theatre.

## TOBI HUNT-MCCOY, stage manager



**Tobi Hunt McCoy** is enjoying another year as Season Stage Manager with the National Arts Centre Orchestra. In past seasons, Ms. McCoy stage managed the Lord of the Rings Symphony, Mendelssohn's *A Midsummer Night's Dream* with Christopher Plummer in 2001 and Colm Feore in 2014, and much of the Orchestra's educational and Pops programming. Also in 2014 she co-produced the Pops show *On the Air* with Jack Everly for the Edmonton Symphony Orchestra, a show they also produced in 2007 for the NAC Orchestra.

Additional professional duties have included cheering on Luke and Princess Leia with Charlie Ross, Émilie Fournier, and Eric Osner during the Star Wars Pops concert; dressing up in 1980's finery for All Night Long - Music of the 80s; bracing the backstage doors against the almighty power of Richard Strauss, Yannick Nézet-Séguin and the air conditioning system at Montreal's La Maison Symphonique; providing air-guitar support during the Led Zeppelin tribute concert; and duck wrangling for the Mysterioso Pops concert. She is excited to be back teaching English and Drama at Lisgar Collegiate.

# Know before you go...



## Etiquette

We recognize that there will be a diverse range of experience amongst your students (from those attending their first live performance to those who have attended many times) and so we encourage you to **review these guidelines** with them to ensure a positive event for all.

## Arrive Early

For NAC Orchestra performances, please arrive **at least 30 minutes** prior to the performance.

## Be Respectful!

- ★ **Dress code:** whatever your school requires you to wear is appropriate for a performance.
- ★ **Food or drinks are not permitted** in the performance hall.
- ★ Please **do not leave/return during the performance** – it disrupts the performance or audience and performers and ruins the magic!
- ★ **Please don't talk** – save your thoughts to share after the performance.
- ★ Definitely **no cell phones, cameras or iPods** – no texting, music or recording of any kind is allowed in the performance hall.

## Show Appreciation

In a music performance, if you get confused about when a piece of music is finished, watch the performers on stage. You'll know when the piece is over when the conductor turns and faces the audience.

## Enjoy!

Performers on stage rely on the audience for the energy to perform – so have fun, enjoy the experience and where it takes you! Through the performing arts we can explore other points of view, learn new and varied things about ourselves and about others. Everyone who views a performance will experience it in a different way. It is important to respect this process of exploration in yourselves and those around you.

- ★ We ask that Teachers and/or supervisors remain with students at all times.
- ★ Please also note: some school matinees will be shared with an adult audience.
- ★ For information on specific show content, please contact the appropriate NAC department Education and Outreach Coordinator.

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Picture of Josef Strauss: [https://no.wikipedia.org/wiki/Josef\\_Strauss](https://no.wikipedia.org/wiki/Josef_Strauss)

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## Beethoven

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