



TEACHER CURRICULUM GUIDE Spring 2006



The New Sound of Music: Hybrid Instruments by Ken Butler

The New Sound of Music: Hybrid Instruments by Ken Butler

March 30 – September 4, 2006

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INTRODUCTION

The New Sound of Music: Hybrid Instruments by Ken Butler

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EXHIBITION OVERVIEW

The New Sound of Music exhibit features hybrid musical instruments created by Ken Butler of Brooklyn, New York. Internationally recognized as an innovator of experimental sculptural instruments, Ken brings together a diversity of everyday materials including tools, sports equipment, and household objects. He has used boots for guitar bodies, and turned floor mops and children's sleds into cellos. He has meshed electric keyboards with a series of cages and spotlights to create an interactive musical light show.

Ken's work explores the interaction and transformation of common objects, altered images, sounds and silence. He links objects that relate to each other visually and that suggest instruments, while the sounds they end up producing are unplanned by-products. Ken has said his work has "an ergonomic relationship" to the body, meaning though they are made out of many protruding objects, he has taken into consideration how the instruments relate to a musician's body.

Many of Ken's instruments are playable and have been used in performances; others are enjoyed for their visual impact, with the sounds being imagined by viewers. The exhibit consists of eleven non-playable musical instruments of varying size and materials, many of which illustrate Ken's admiration for Cubism. Visitors are invited to play five additional instruments: *Projection Grand: An Incandescent Keyboard*, *Snow Scene Shovel*, *1-String Hammer Violin*, *Ski Pole Guitar Viola*, and *Urban Grand Piano*. (Look for the colored dots next to instruments that may be touched by visitors.)

Also featured in the exhibit is a mural created by local students in grades 6 to 10 who participate in ArtSHOP, the Kidspace after-school art program. With artist mentor and collage artist Karen Arp-Sandel, students have designed a textured, Cubist-style collage mural with references to music and musical instruments.

The exhibit includes a viewing area where the artist can be seen performing on video, as well as a listening station featuring Ken's music on CDs. An art-making area offers visitors the opportunity to create their own musical instruments. A gallery brochure is provided for all visitors to learn more about the Kidspace exhibit, as well as to find other sound art at MASS MoCA.

ABOUT THE ARTIST

Biography

Ken Butler studied viola as a child and maintained an interest in music while studying visual arts in France, at Colorado College, and at Portland State University where he completed his MFA in painting in 1977. He has received fellowships from the Oregon Arts Commission, the New York Foundation for the Arts, and the National Endowment for the Arts. Ken's works have been featured in numerous exhibitions and performances throughout the USA, Canada, and Europe including The Stedelijk Museum in Amsterdam and Exit Art, Thread Waxing Space, The Kitchen, The Brooklyn Museum, Lincoln Center and The Metropolitan Museum of Art in New York City, as well as in galleries in South America, Thailand, and Japan. His works have been featured on PBS, CNN, MTV, and NBC, including a live appearance on *The Tonight Show*, and are represented in public and private collections in Portland, Seattle, Vail, Los Angeles, Toronto, Montreal, Washington, and New York City, including the permanent collection of The Metropolitan Museum of Art. Ken has performed with John Zorn, Laurie Anderson, Butch Morris, The Soldier String Quartet, Matt Darriau's Paradox Trio, The Tonight Show Band, and The Master Gnawa musicians of Morocco. His CD *Voices of Anxious Objects* is on Zorn's Tzadik label.

Artist Statement

My hybrid musical instrument sculptures, collage/drawings, performances, and audio-visual installations explore the interaction and transformation of objects, sounds, and altered images as function and form collide at the intersection of art and music. I re-invent objects in an attempt to reveal hidden meanings and associations, creating new cultural identities for common objects. String instruments become bodies, tools, toys, machines, creatures, sculptures, icons, and voices. Keyboards become "cybernetic architecture" where old and new materials are combined, and the keys activate things other than the sounds of the strings.

As we move to increased reliance on electrical machines, the churning mass of

consumerism chews up and spits out common products with re-assigned priorities and updates. Some materials of the past remain, untouched and relegated to the junkyard of unwanted resources. From this stockpile, I dismantle and reassemble objects into functional assemblages / groupings in the form of musical instruments / objects, then coax them to sing for their supper.

--Ken Butler, New York, 2006

THE NEW SOUND OF MUSIC PROGRAMS

TEACHER WORKSHOPS

Teacher workshops are an important aspect of the Kidspace program and we require that all teachers participate in them. Educators will explore the extensive curriculum packet, which will help you to better connect the Kidspace program to your various curriculum areas and to be better prepared to incorporate Kidspace into your busy schedule. There are two workshops planned for your school this spring. At these workshops we will review how to make connections between art and other subject areas including science and English language arts. We will also try-out projects outlined in this curriculum. Teacher workshops for Savoy and Florida will be conducted with Kidspace staff and curriculum writers Debbie Nowicki and Heidi Dugal. Please mark the workshop dates on your calendar (you can find the dates in Section 2 of this curriculum.)

KIDSPACE PROGRAMS

This curriculum provides you with classroom activities that you can do with your students before and after visits to Kidspace. It is broken down into three curriculums: one for Pre-K – K, 1st – 4th, and 5th – 8th grades. Activities can easily be adjusted to suit the needs and interests of your particular grade level. In certain cases, we offer different activities for the different grade levels.

Are You Already Doing Something Relating to Kidspace? We purposefully choose exhibition themes that easily relate to topics you are working on in school or that are included in the MA and VT Learning Frameworks. This curriculum presents multi-disciplinary activities and a number of different approaches to studying sound, music, collages, and sculpture. You might already have in your curriculum projects that can easily tie into themes addressed at Kidspace. For instance, are you planning a unit on the physics of sound? Or will you look at how authors play with sound in poems? There are many other ways to connect Kidspace to your existing curriculum and we encourage you to plan this before

the beginning of the Kidspace semester. We will have time to discuss this further at our teacher workshops.

Each class will visit Kidspace. During your visit to Kidspace your students will work with Kidspace staff to explore *The New Sound of Music* exhibition. Students will then have the opportunity to create their own musical instruments using similar materials and processes to those used by Ken.

The artist residency program continues this year. In March, Ken Butler will perform at MASS MoCA for students from the North Berkshire, MA and Stamford, VT schools. Ken will complete an artist residency in these schools, too, where he will explore the nature of sound and amplification. Your residency will take place before your trips to Kidspace.

Public programs to be aware of are: The exhibition opening will be held on March 30th from 3:30 to 6:00pm. During the summer, Kidspace and MASS MoCA's performing arts department will host a week-long music class for kids where they will learn about musical instruments with the Bang on the Can performers and make their own instruments in Kidspace. Additional art classes will be held in Kidspace during Spring break and over the summer.

Public hours will be held on Saturdays and Sundays from 12 to 4pm throughout the school year. Additional weekday hours will be held during Spring Break (April 17 - 21) and on Memorial Day (May 29). Summer public hours will begin on June 26 when Kidspace will be open everyday from 12 to 4pm through Sept 4.

GENERAL PROGRAM GOALS

- Contemporary art can be used to sharpen student visual literacy skills, which can be applied in many subject areas, including art, English language arts, science, and social studies.
- Creating their own works of art can help students to better understand artistic processes explored in museum exhibitions.
- Interactions with artists and their artwork help students to more fully understand the artistic problem-solving processes.
- Curriculum materials and teacher workshops can motivate classroom educators to make multiple curriculum connections to the subject being explored at Kidspace.

LEARNER OUTCOMES

Through multiple activities focusing on sound, music, sculpture and collage, students will:

- discuss their understanding of how an artist's selection of material influences meaning in works of art and their design quality;
- recognize that sound can be made by using any recycled material or object;
- explain how sound can be described using words in poems;
- compare the science of making sound to the art of it (visual arts and music);
- report how a combination of materials can create an interesting collage sculpture and relate to other artwork they may have seen in the past;
- act out their understandings of music and sound in performance activities;
- illustrate their interpretations of how artists combine materials to create collage sculptures in their own musical instruments.

YOUR FEEDBACK AND SHARING WITH OTHERS

We will have an evaluation workshop with all of the teachers in your school (see your school's schedule in this curriculum), where you will be asked to bring a completed evaluation form (found in the **Teacher Resource** section). Meanwhile, we would appreciate hearing your thoughts along the way. Drop us a note at kidspace@massmoca.org, or phone us at 413-664-4481 ext. 8131. **Your comments do make a difference.**

We hope that you will share your class projects with others in your school. Since each class in your school is involved with Kidspace, it would be interesting to see the different interpretations of the activities and the Kidspace experience. You might display your work throughout the school and meet with other classes to discuss the artists' work and Kidspace.

We look forward to a successful collaboration!

Laura Thompson, Ed.D.
Kidspace Director of Exhibitions and Education
Coordinator

Angela Roberts
Education



THE ART OF SOUND AND THE SOUND OF ART

Pre-K & Kindergarten Activities

OVERVIEW

In the classroom and at Kidspace, students in Pre-K and Kindergarten will examine different ways artists create musical instruments through looking at sculpture and paintings, class discussions, and experiments with sound. They will also discuss recycling and how artists might use recycled materials for art supplies.

At Kidspace, students will discuss the sculptural work Ken Butler. They will look for ways in which the artist used found objects and parts of traditional instruments to create musical instruments. They will have the chance to play some instruments and to experiment with sound. Students will then make their own hybrid instruments.

ACTIVITY SCHEDULE

Before Your Kidspace Program

1. Discussion: Introduction to Topic and Kidspace Semester
2. Art/Music: Viewing and Hearing Musical Instruments
3. Music/Science: KWL Chart

4. Music: Do You Hear What I Hear?
5. Math/Music: Patterns in Music
6. Language Arts: Sound Stories

Artist Residency at Your School

1. Preparing for Artist Residency

During Kidspace Visit

1. Guided Discussion
2. Art-Making Activity: Making Musical Instruments

After Your Kidspace Program

1. Art/Music: Classroom Orchestra
2. Math/Music: Water Glass Bells
3. Creative Movement/Music: Musical Moods

BEFORE YOUR KIDSPACE PROGRAM Pre-K & Kindergarten

Objectives

- Through a review of images and an introductory discussion on musical instruments, students will understand how Ken Butler uses found objects to create hybrid instruments.
- Students will look at and listen to traditional music instruments to later identify traditional instruments used in Ken Butler's work.
- Through identifying different environmental sounds, students will further their listening skills.
- Students will explore patterns in music by singing songs and using their bodies as instruments to create patterns.

PRE-VISIT ACTIVITY 1

Discussion: Introduction to Topic and Kidspace Semester

Explain to your students that this year's Kidspace semester will be focus on hybrid musical instruments. *The New Sound of Music* exhibition will feature Ken Butler 's musical instruments made from recycled materials or found objects, sometimes blending with parts of traditional instruments. Explain that Ken can be considered an inventor, as well, because he has changed the way traditional musical instruments look and sound to come up with something new. As you explain the theme and semester, you may want to show the examples Ken's work (see transparencies or CD-Roms).

Hybrid: the combination of more than two things to create something new. In science, the combination of two species to create a new one, such as a jackass and a mare form a mule.

Explain to your students that the art they will see this semester will contain elements where they not only have to look carefully at what they see, they will be asked to listen very carefully to what they hear.

Tell your students that before their visit to Kidspace, they will participate in activities and experiment with sound the way Ken Butler does to learn about sound and how sound is connected to the art world. They will then visit Kidspace to see how the artist connects sound and music to the visual arts. During their visit, they will participate in an art project involving creating their

own musical instruments. After their visit, they will continue to explore the world of sound and art and they will invent additional musical instruments. They will also have the opportunity to meet with Ken, who will do an assembly program in your school's gym or lunchroom area.

PRE-VISIT ACTIVITY 2

Art /Music: Viewing and Hearing Musical Instruments

(Materials: Overhead projector, computer, transparencies or CD-ROMs, CD player, CDs, Ken Butler booklet)

Images: Now that your students are aware of the Kidspace program, have a discussion on the art of musical instruments (see image list and suggested questions on the next page). We have provided you with overhead projector transparencies and CD-ROMs with images of instruments (check them out at your school's main office). For this activity you will start by relating back to images your students saw last year with the *Magic Gardens* exhibition, connecting their past understandings about realism vs. fantasy in artwork of gardens to images of both realistic and imaginative musical instruments.

Listening: You may also choose to show your students images of some traditional musical instruments and play recordings of the sounds they make. (This material can be found on The Dallas Symphony Orchestra's website at <http://www.dsokids.com/2001/instrumentchart.htm>). Explain that most Western traditional instruments can be put into three main groups: **percussion** (hitting or shaking makes the sound), **wind** (a vibrating column of air makes the sound), and **string** (plucking, hitting, or bowing the strings makes the sound). **Keyboards** could be considered both a percussion and string instrument, and therefore, have their own category. Challenge students to put the images you show into one of the four groups of instruments.

Ken Butler's Artwork: Show the image of Ken's work again, playing the sounds they make using the CDs provided. Discuss with your students which instruments they think the artist incorporated, if any, and to describe what type of sounds they hear. Do they hear traditional sounds they can connect to traditional instruments or do they hear new sounds? Does Ken's artwork fit into one of the three traditional categories of musical instruments or do they belong in a new group of instruments?

Explain that some sounds are made electronically. How do these instruments fit in?

Transparency Images and Questions

Images 1 and 2: (Realism) Herb Garden - Bristol, England and Monet's *Water Lilies and Japanese Bridge*, 1899

Discuss the two different types of gardens and how they portray realistic versions of gardens. What kinds of gardens are these? What kinds of plants do you recognize? Would you be likely to find either of these gardens in our world?

Images 3 and 4: (Fantasy) Timothy Basil Ering's *The Story of Frog Belly Rat Bone*, 2003 and Emily Cheng's *Lotus Tangle, Summer*, 2004

How did these two artists change your idea of what a garden might look like? What elements in these paintings are similar to Images 1 and 2? Discuss real versus fantasy.

Image 5 and 6: *Egyptian tomb painting of musicians*, c. 1542-1295 BCE and *Group of seated female musicians*, Tang dynasty (618-906), China

Does this painting show us a real scene? How is it showing a real event? What is happening in the painting? Describe the people and the musical instruments.

Image 7: *Three Musicians* by Pablo Picasso, 1921 (Philadelphia Museum of Art)

Does this painting show us a real scene? How did this artist take the idea of musicians having a musical performance and change it around to make it his own? Discuss Picasso's use of cubism (a style of painting, drawing, or sculpture in which objects are represented by cubes and other geometric shapes). What musical instruments do you see?

Images 8 and 9: *Bride and Groom* by Marc Chagall, 1939 and *Lit Et Deux Tables de Nuit* by Salvador Dali, 1983

Can you find any musical instruments in either of these paintings? Do these images seem realistic? What do you think is happening? What do you think the instruments sound like? How are these and Picasso's paintings different from Image 5 of the Egyptian tomb painting? From where did the artists get their ideas?

Image 10: *Freon Lyre* by Mark Stewart

Is this a musical instrument? What do you think it is made from? How would you play it? From where did Mark Stewart get the idea for this instrument? In which images did you see a similar instrument? (#5, #6, and #7)

Transparencies Con't.

Image 11: Violin

What is this instrument? How do you make music with it? Discuss its shape, line, and parts (body, neck, scroll bridge, tuning pegs, strings).

Image 12: Violin and Guitar by Pablo Picasso, 1912 (Hermitage Museum)

Can you find the instrument parts in the painting? What did Picasso do to the violin and guitar? (He took a traditional violin and guitar apart and added other things to the picture to create a new version of these instruments). Compare to Image 6.

Images 13 -16: Ken Butler's examples of musical instruments

Are these musical instruments? What instruments do you recognize? How are they different? What did the artist do to create his own, new kind, of instrument? What other objects did he use to make his instruments? How do you imagine they work and sound?

PRE-VISIT ACTIVITY 3

Music/Science: KWL Chart

(Materials: KWL chart, blackboard or chart paper)

After you have introduced the Kidspace theme, tell your students that this activity will help everyone to start thinking more about the sounds Ken is concerned with making. It will also serve as an indicator as to what the students know about the subjects of sound and music and can be used to determine which activities you think will be helpful to pursue.

Begin your discussion by drawing a KWL chart on your blackboard or on chart paper.

“Sound and Music”

What I Know

What I Want to Know

What I Learned

K	W	L
Make a list of things that your students know about sound and music.	Make a list of things that your students want to know about sound and music.	Make a list of things that your students learned about sound and music in the following classroom activities and at Kidspace.

Have your students fill-in the KWL chart by answering questions about sound such as:

- What is sound?
- Where do sounds come from?
- How are sounds made?
- How do people and animals make sounds?
- Do all sounds sound the same?
- How can you describe sound?
- What is music?
- How do we make music?

PRE-VISIT ACTIVITY 4

Music: Do You Hear What I Hear?

(Materials: Natural environmental sounds (within and outside the classroom), CD player, CD with different sounds)

Explain that when they go to Kidspace, your students will be asked to listen to different kinds of sounds made by the artwork in the exhibition. Some sounds may be familiar to them and some sounds may those that they've never heard before. Tell them that in order to practice for their listening experience at Kidspace, that they will be spending the next few minutes listening to sounds around them. Younger students can either draw pictures of the things they hear making sounds or discuss what they heard when the time limit, that you establish, is up. Older students can record the sounds they hear. When you are finished listening, discuss what everyone heard, while making a master list on chart paper or the board. Students can then classify the sounds. Suggested questions:

- Which ones were the loudest?
- Which were the softest sounds?

- Which sounds were pleasant?
- Which sounds were unpleasant?
- Which sounds were made by people?
- Which sounds were made by machines or objects?

Ask your students of other ways they can think of to classify the sounds they heard (happy sounds, sad sounds, etc.). You can begin this lesson in the classroom and then pick another environment (gym, lunch room, playground) in which to do this same activity. Compare the list of sounds heard in the second environment with those from the first.

PRE-VISIT ACTIVITY 5

Math/Music: Patterns in Music

Ask your students to give the definition for the word **pattern** and record their answers on chart paper or the blackboard. After, share with them the definition of patterns below. Compare and contrast you students' definitions with this definition. Ask your students to think about the places that they might find patterns and then ask them to describe what these patterns look like. Remind your students that when they visit Kidspace they are going to see hybrid musical instruments that sound patterns and are visually patterned with designs. While viewing the Kidspace exhibition, we identify different musical patterns.

Pattern: something that is visually repeated, such as a shape, color, texture, or line. Patterns can be found all around us, in our homes, neighborhoods, and in nature. Patterns can also be found in stories, poems, and music that have repetitive themes, refrains, and rhymes. A pattern can also be an object that is repeated such as in every living room in most homes there is a couch.

Share with your students that they will find patterns in familiar songs such as *Twinkle, Twinkle Little Star*; *Row, Row, Row Your Boat*; *Mary Had A Little Lamb*; *Head, Shoulders, Knees, and Toes*; *If You're Happy and You Know It*; and *The Farmer in the Dell*. Sing these songs together as a class and identify the patterns within them. Lyrics for these songs can be found in the **Teacher Resource** section of the curriculum.

Explain to your students that we not only make sounds with instruments and our voices, but we can also make sound patterns by using our bodies. Tell the

children that they will now use their bodies to make different sounds. Explain to them that you will begin a pattern and they will continue it. For example:

Teacher: Clap, Clap, Clap, Clap

Students: Clap, Clap

Teacher: Snap, Stomp, Stomp, Snap, Stomp, Stomp

Students: Snap, Stomp, Stomp

Teacher: Clap, Snap, Stomp, Clap, Snap, Stomp

Students: Clap, Snap, Stomp

Have the students make up their own body patterns and have a partner add on to it. Once the students have acted out their patterns with their partner ask them to repeat it a second time while counting their pattern aloud.

PRE-VISIT ACTIVITY 6

Language Arts: Sound Stories

The following books will be useful when discussing instruments and sound with your students. Read aloud the books with your students and be sure to show them the images.

- *Crash! Bang! Boom!* By Peter Spier
- *Jack Plays the Violin* by Jessica Schultz
- *Musical Instruments Around the World* by Meryl Doney
- *Musical Instruments from A to Z* by Bobbie Kalman
- *Musical Instruments* by Claude Delafosse
- *The Very Quiet Cricket* by Eric Carle
- *Zin! Zin! Zin! A Violin* by Lloyd Moss

Extension: Read aloud your students' favorite book. Ask your students to make up sounds to go along with different parts of it such as a dog howling, someone running, or the wind blowing. As you read the story to your students, ask them to fill in different parts of the story with the sounds that they came up with.

ARTIST RESIDENCY

Kindergarten

Ken will conduct a one-hour performance at MASS MoCA using his hybrid musical instruments for all Kindergarten – 8th graders at the end of March. Your students will also have the opportunity to work with Ken in your school. Working in groups of two to four classes at a time, Ken will demonstrate how he can amplify any object from a piece of paper to a pencil. Each session will take place for one hour.

We recommend that you prepare your students ahead of time for this exciting piece of the Kidspace program. Please make sure to do the activities in this curriculum guide before your visit with Ken. You may also want to have your students put together a list of questions to ask Ken about his work and his life as an artist and musician.

DURING YOUR KIDSPACE VISIT

Pre-K & Kindergarten

A series of questions will be used to help guide your students in their exploration of *The New Sound of Music*. They will be asked to respond to these questions using the artwork as a source of both information and inspiration. Each question builds upon another so that students can make connections among the work on view. For instance, they might be asked the following questions when standing in front of one work of art:

- What do you think is going on in this sculpture?
- What kind of materials did the artist use to create the work? Why do you think that the artist chose to use these materials?
- When looked at together, how does the artist's work tell us a story?
- What do you think the artist was inspired by?
- What details are important to the story the artist is trying to tell us?
- How does the artist's piece relate to the last artist's work we looked at?
- Does this instrument look realistic? Have you seen something similar to it in other museums?

These guided discussions serve two purposes: to build students' visual literacy skills and to increase their knowledge of portraits. Visual literacy skills include thinking critically about what one sees, forming opinions and interpretations about artwork, and expressing in words these observations and opinions.

Following the guided discussions, students will have the opportunity to reflect on Ken Butler's art-making processes. We will talk about what the artist needed to do in order to create his works of art. In particular, we will discuss how the artist recycled material to make unusual sounds and sculptures. Students will then have the opportunity to create their own musical instruments.

AFTER YOUR KIDSPACE PROGRAM

Pre-K & Kindergarten

Objectives

- Students will further explore sound by making up their own orchestra using their hybrid musical instruments.
- Students will revisit patterns while creating musical patterns on Water Glass Bells.
- Students will explore how music can affect mood.

POST-VISIT ACTIVITY 1

Art/Music: Classroom Orchestra

(Materials: a variety of found objects, glue, scissors, rubber bands, tape)

As part of their activity at Kidspace, your students created their own musical instruments. Have them use them to create a classroom orchestra. Have them try combining sounds and movements using their instruments. Perhaps put on a performance for other classes or for parents.

You might also have your students add to the orchestra creating additional instruments. They should first brainstorm ways they can make a musical instrument, thinking about Ken's work in Kidspace. They should test their instruments by playing simple tunes on them. To gather materials for this project, have your students first create a list of materials they would like to use and write a group letter to their families to request donations of materials (there is a sample letter in the **Teacher Resource** section of the curriculum).

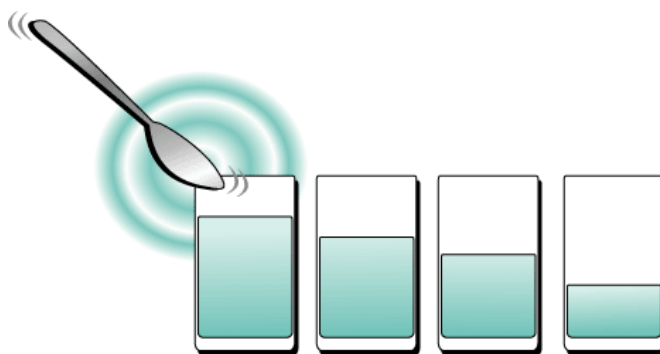
POST-VISIT ACTIVITY 2

Math/Music: Water Glass Bells

(Materials: water glasses, water, spoons)

Remind your students of the instruments they saw at Kidspace and how Ken uses found objects to make them. Explain to students that they can make instruments out of objects found at home such as a drinking glass and water.

To demonstrate this activity to students you will need to set up 4 – 6 glasses with varying amounts of water and label each glass using letters or numbers. Using a spoon, demonstrate for your students how each glass makes a different sound depending on how much water is in it.



Give your students time to experiment with playing the water-filled glasses. Tell your students that as they practice playing their water glass bells to say aloud the numbers or letters that are creating their sound pattern. Ask your students then demonstrate it for their classmates and see if they can figure out what the pattern is and if they can try to extend it.

POST-VISIT ACTIVITY 3

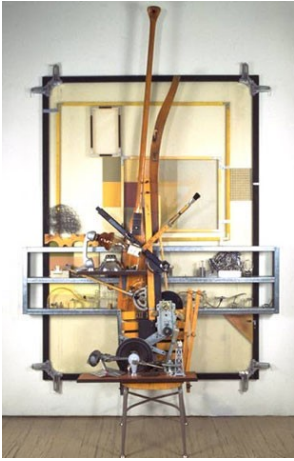
Creative Movement/Music: Musical Moods

(Materials: CD player, CDs, paper, crayons, markers, examples of different kinds of music/sounds)

Remind your students of the different kinds of sound made by the artwork at Kidspace. Some sounds may have been familiar to them and some may be sounds that they've never heard before. Ken Butler's instruments when played or viewed evoke a particular feeling or mood. Begin a discussion on how the different instruments they saw at Kidspace made them feel.

Ask your students to discuss the different kinds of music they like to listen to. Are there times when they want to listen to a particular type of music? Sometimes we just want easy listening music, like when we are in the dentist's office to help us relax. Other times we want to listen to noisy music that makes us want to dance.

Choose a music selection from the CDs provided from Kidspace (in your school's main office). Tell your students that they will be listening to different examples of music. As your students listen to the selections, ask them to make facial expressions or create a short set of movements representing how the music made them feel.



THE SCIENCE AND ART OF MUSIC

1st – 4th Grade Activities

OVERVIEW

In the classroom and at Kidspace, students in grades 1 - 4 will examine different ways artists create musical instruments through looking at sculpture and paintings, class discussions, and science and art experiments on sound. They will also discuss recycling and how artists might use recycled materials for art supplies.

At Kidspace, students will discuss the sculptural work of Ken Butler. They will look for ways in which the artist uses found objects and parts of traditional instruments to create musical instruments. They will have the chance to play some instruments and to experiment with sound. Students will then make their own hybrid instruments.

ACTIVITY SCHEDULE

Before Your Kidspace Program

7. Discussion: Introduction to Topic and Kidspace Semester
8. Art / Music: Viewing and Hearing Musical Instruments
9. Science / Art: Sound Experiments

Artist Residency at Your School

2. Preparing for Artist Residency

During Kidspace Visit

3. Guided Discussion
4. Art-Making Activity: Making Musical Instruments

After Your Kidspace Program

4. Science / Music: Water Glass Chime
5. Science / Music: Rubber Band Guitar
6. Language Arts: Noisemaker Poems
7. Language Arts: Sound Effects Storytime
8. Creative Movement: The Human Musical Instrument
9. Music / Art: Classroom Orchestra
10. Language Arts: Revisiting the KWL Chart
11. Extension Activities

BEFORE YOUR KIDSPACE PROGRAM
1st – 4th Grade

Objectives

- Students will categorize images of traditional instruments into the three main groups: percussion, wind, or string instruments.
- Students will discuss where and how they think Ken Butler’s musical art fits in to the three main groups of traditional instruments.
- Students will compare and contrast images of other artists’ work to the work of Ken Butler.
- Students will describe how music and visual art can be combined as a way to express feelings or moods.
- Students will define sound, how it is made and how it travels.

PRE-VISIT ACTIVITY 1

Discussion: Introduction to Topic and Kidspace Semester

To begin your Kidspace unit, introduce the topic of the semester: **hybrid** musical instruments. *The New Sound of Music* exhibition will feature Ken Butler’s musical instruments made from recycled materials or found objects, sometimes blending with parts of traditional instruments. Explain to your students that Ken can be considered an inventor because he changes the way traditional musical instruments look and sound to come up with something new. As you explain the theme and semester, you may want to show the examples of Ken’s work (see transparencies or CD-Roms).

Hybrid: the combination of more than two things to create something new. In science, the combination of two species to create a new one, such as a jackass and a mare form a mule.

Ask your students to recall what they saw at Kidspace in the past. Recall the **collages** they made as part of the *Wind Farm* and *Susan Leopold* exhibitions, and discuss how a collage is combination of different materials and objects put together in a new way. Recall that some students made their collages three-dimensional because they had pieces sticking up or hanging off of the paper. Explain and show how Ken Butler’s artwork is also like collages in that it is a combination of different materials.

Recall the **kinetic sculptures** they saw and made at Kidspace in the *Wind Farm* exhibit. Ken's art also has moving parts in some of his instruments. Remember Bill Bergman's sculpture where you had to turn a crank in order to make wind that would make the old-fashioned camera move? Some of Ken's pieces will be three-dimensional sculptures that have parts that move.

Explain to your students that although the art they will see this semester will contain elements similar to the art they've seen and made at Kidspace on previous visits, this time they will not only be asked to look very carefully at what they see, they will be asked to listen very carefully to what they hear.

Tell your students that before their visit to Kidspace, they will participate in activities and experiment with sound the way Ken does to learn about sound and how sound is connected to the art world. They will then visit Kidspace to see how the artist connects sound and music to the visual arts. During their visit, they will participate in an art project involving creating their own musical instruments. After their visit, they will continue to explore the world of sound and art and they will invent additional musical instruments. They will also have the opportunity to meet with Ken who will demonstrate how to amplify ordinary objects.

PRE-VISIT ACTIVITY 2

Art /Music: Viewing and Hearing Musical Instruments

(Materials: Overhead projector, computer, transparencies or CD-ROMs, CD player, CDs, Ken Butler booklet)

Images: Now that your students are aware of the Kidspace program, have a discussion on the art of musical instruments (see image list and suggested questions on the next page). We have provided you with overhead projector transparencies and CD-ROMs with images of instruments (check them out at your school's main office). For this activity you will start by relating back to images your students saw last year with the *Magic Gardens* exhibition, connecting their past understandings about realism vs. fantasy in artwork of gardens to images of both realistic and imaginative musical instruments.

Listening: You may also choose to show your students images of some traditional musical instruments and play recordings of the sounds they make. (This material can be found on The Dallas Symphony Orchestra's website at <http://www.dsokids.com/2001/instrumentchart.htm>). Explain that most Western traditional instruments can be put into three main groups: **percussion** (hitting or shaking makes the sound), **wind** (a vibrating column of air makes the sound), and **string** (plucking, hitting, or bowing the strings makes the sound).

Keyboards could be considered both a percussion and string instrument, and therefore, have their own category. Challenge students to put the images you show into one of the four groups of instruments.

Ken Butler's Artwork: Show the image of Ken's work again, playing the sounds they make using the CDs provided. Discuss with your students which instruments they think the artist incorporated, if any, and to describe what type of sounds they hear. Do they hear traditional sounds they can connect to traditional instruments or do they hear new sounds? Does Ken's artwork fit into one of the three traditional categories of musical instruments or do they belong in a new group of instruments?

Explain that some sounds are made electronically. How do these instruments fit in?

Transparency Images and Questions

Images 1 and 2: (Realism) Herb Garden – Bristol, England and Monet's *Water Lilies and Japanese Bridge*, 1899

Discuss the two different types of gardens and how they portray realistic versions of gardens. What kinds of gardens are these? What kinds of plants do you recognize? Would you be likely to find either of these gardens in our world?

Images 3 and 4: (Fantasy) Timothy Basil Ering's *The Story of Frog Belly Rat Bone*, 2003 and Emily Cheng's *Lotus Tangle, Summer*, 2004

How did these two artists change your idea of what a garden might look like? What elements in these paintings are similar to Images 1 and 2? Discuss real versus fantasy.

Image 5 and 6: *Egyptian tomb painting of musicians*, c. 1542-1295 BCE and *Group of seated female musicians*, Tang dynasty (618–906), China

Does this painting show us a real scene? How is it showing a real event? What is happening in the painting? Describe the people and the musical instruments.

Image 7: *Three Musicians* by Pablo Picasso, 1921 (Philadelphia Museum of Art)

Does this painting show us a real scene? How did this artist take the idea of musicians having a musical performance and change it around to make it his own? Discuss Picasso's use of cubism (a style of painting, drawing, or sculpture in which objects are represented by cubes and other geometric shapes). What musical instruments do you see?

Images 8 and 9: *Bride and Groom* by Marc Chagall, 1939 and *Lit Et Deux Tables de Nuit* by Salvador Dali, 1983

Can you find any musical instruments in either of these paintings? Do these images seem realistic? What do you think is happening? What do you think the instruments sound like? How are these and Picasso's paintings different from Image 5 of the Egyptian tomb painting? From where did the artists get their ideas?

Image 10: *Freon Lyre* by Mark Stewart

Is this a musical instrument? What do you think it is made from? How would you play it? From where did Mark Stewart get the idea for this instrument? In which images did you see a similar instrument? (#5, #6, and #7)

Transparencies Con't.

Image 11: Violin

What is this instrument? How do you make music with it? Discuss its shape, line, and parts (body, neck, scroll bridge, tuning pegs, strings).

Image 12: Violin and Guitar by Pablo Picasso, 1912 (Hermitage Museum)

Can you find the instrument parts in the painting? What did Picasso do to the violin and guitar? (He took a traditional violin and guitar apart and added other things to the picture to create a new version of these instruments). Compare to Image 6.

Images 13 -16: Ken Butler's examples of musical instruments

Are these musical instruments? What instruments do you recognize? How are they different? What did the artist do to create his own, new kind, of instrument? What other objects did he use to make his instruments? How do you imagine they work and sound?

PRE-VISIT ACTIVITY 3

Science / Art: Sound Experiments

Please note that the following pre-visit activities/experiments are designed to provide a wide range of experiences that will lead your students to a greater understanding of sound and its importance to the Kidspace artist. Choose activities that are appropriate to fit the needs of your students.

A. Thinking About Sound and Music

(Materials: KWL chart, chart paper or black board)

After you have introduced the Kidspace theme, tell your students that this activity will help everyone to start thinking more about the sounds Ken is concerned with making. It will also serve as an indicator as to what the students know about the subjects of sound and music and can be used to determine which pre-activities you think will be helpful to pursue.

Either distribute copies of a KWL chart to your students or copy the KWL onto chart paper or a black board. Prepare a KWL chart with the following title and sections:

“Sound and Music”

What I Know

What I Want to Know

What I Learned

K	W	L
Make a list of things that your students know about sound and music.	Make a list of things that your students want to know about sound and music.	Make a list of things that your students learned about sound and music in the following classroom activities and at Kidspace.

Fill in the first two columns together, as a class. The chart should remain up during the Kidspace semester in order to revisit questions/answers during activities and experiments. The last column can be filled in as you go along with the activities or can serve as a post-activity at the end of the semester.

Some helpful questions to prompt students in the KWL activity are:

- What is sound?
- Where do sounds come from?
- How are sounds made?
- How does sound get from one place to another?
- How do people and animals make sounds?
- Do all sounds sound the same?
- How can you describe sound?
- How can we change sound?
- What makes sounds louder, softer, higher, or lower?
- How do people use sound?
- What is music?
- How do we make music?

B. Making a “Musical” Mural

(Materials: mural paper, pastel chalks or markers, CD player, CD of various music)

Students will make a mural while listening to different types of music to help make the connection between the visual art world and the music world. Ask your students to think about how pictures or paintings often bring about certain moods or feelings. For instance, last year Tim Basil Ering’s work used dark

colors to make us feel sad and lonely, and bright colors when things in his story took a turn for the better. Emily Cheng's work made some of us feel happy or sad by the colors she chose. The lines and shapes made some of us relaxed or excited and brought about other feelings. (You might use the transparencies of Ering's and Cheng's work as examples.)

Explain that they will connect the visual art world to music by making a mural while listening to music. Play a variety of music (at least 3 selections) for your students including contemporary as well as classic, from different cultures as well as from your own (CD can be borrowed from your main office). As they listen to the music being played, each student should choose a piece of chalk or marker color that represents the mood of the music. Have your students line up along a long piece of mural paper. As they move along the paper, they should draw a line or shape that the music makes them think of or that describes the feeling they have when listening to the music. This activity should be done quickly and without a great deal of thought so the students don't come up with literal translations of the song's lyrics. Each student lines up and moves along the paper to the sound of the music. When all have finished, play the next type of music and they should repeat the process with another color and different type of line and/or shape.

When all of the music selections are done, you should end up with a colorful abstract mural. Discuss with your students why they chose the colors, lines, and shapes that they did and how the music influenced their choices.

C. Sounds Are All Around Us

(Materials: paper, pencils or crayons)

Explain that when they go to Kidspace, your students will be asked to listen to different kinds of sounds made by the artwork in the exhibition. Some sounds may be familiar to them and some sounds may be those that they've never heard before. Tell them that in order to practice for their listening experience at Kidspace, that they will be spending the next few minutes listening to sounds around them. Younger students can either draw pictures of the things they hear making sounds or discuss what they heard when the time limit, that you establish, is up. Older students can record the sounds they hear. When you are finished listening, discuss what everyone heard, while making a master list on chart paper or the board. Students can then classify the sounds. Suggested questions:

- Which ones were the loudest?
- Which were the softest sounds?

- Which sounds were pleasant?
- Which sounds were unpleasant?
- Which sounds were made by people?
- Which sounds were made by machines or objects?

Ask your students of other ways they can think of to classify the sounds they heard (happy sounds, sad sounds, etc.). You can begin this lesson in the classroom and then pick another environment (gym, lunch room, playground) in which to do this same activity. Compare the list of sounds heard in the second environment with those from the first.

D. Guess My Sound (Sound Recognition)

(Materials: variety of objects that make distinctive sounds. Some items might include: papers (to rustle), bell, horn, chalk (to make a writing sound on the board), a zipper, a screw-on jar top, keys (to jangle), a book (to open and flip through), a box of tissues (to pull one out).

Ask students how they know water is running in the bathtub, a kettle is boiling, or a kitten is trying to get into the house. Explain that in each case a distinctive sound lets them know what is going on, even if they can't see the source of the sound. As we grow, we learn to recognize and react appropriately to a variety of sounds. Introduce the term **sound source** in this lesson to mean the object, animal, or person that makes a sound. Remind your students of the pictures of the musical instruments and the sounds that they listened to. Tell them the sound source of a musical instrument is the part of the instrument where the sound comes from. Tell them that when they go to Kidspace, they will see some sound sources that they recognize and some that they've never seen before because the artist has invented them.

Explain to your students that in this activity they will be trying to identify sound sources while they have their backs turned from the source of each sound. When they think they know what is making the sound, younger students can raise their hands to answer. Older students can write down their answers. Choose student volunteers to use each sound maker. You may want to number the props or after each one is used, line them up in order. When almost everyone has raised a hand or finished writing, proceed to the next volunteer. When all volunteers have made their sounds, the students can turn around and see if their guesses were correct. Younger students may need to turn around more frequently so that they will not have to remember a long list of sounds. This portion of the activity gives listening skill practice.

The next part of this activity will expand on the traditional sounds they listened to. Tell the class that they will now have a chance to create new sounds with found objects the way Ken does. They will participate in a game called “Guess My Sound Source.” You may make this activity part of a homework assignment where your students must find something around their homes that make unique sounds. They should bring their sound sources to school in bags or boxes so as not to give away their prop identities. Tell them their job is to try to stump the class with their unique sounds. They may use toys, kitchen gadgets, tools, etc.

E. What Causes Sound?

(Materials: tuning fork, water, paper towels, rubber bands, plastic cups, and plastic rulers)

Anything we call a sound begins when one object bumps or hits against another and they both begin to vibrate. Usually these vibrations are so small and rapid that we do not see them or feel them. This activity will introduce several examples of objects that vibrate to create sounds. These experiments may be done in groups or as demonstrations. There is a worksheet called “What Causes Sound?” in the **Teacher Resource** section that you might use along with this activity.

Explain that in order for the Kidspace artist to make musical instruments that produce sound, Ken first needed to know what causes sounds to be heard. Ask your students what they think causes sound and record their answers on the board, on the KWL Chart, or you may use the “What Causes Sound?” worksheet as the experiments are conducted. Explain that they will be observing a variety of objects to discover what causes sound. As they observe each object, they will record what they hear, see, and feel. For younger students, you may want to record all the observations on one class chart or on the board.

Tuning Fork: Demonstrate how to hold a tuning fork by its stem, and strike one of its prongs with a rubber striker to make it ring. Warn the students that the prongs may become bent or broken if a tuning fork is hit too hard against an object. Allow your students to experiment with the tuning fork. Ask them to describe what they see happening while the tuning fork is making its sound. (The prongs move back and forth very quickly). Ask what they feel when they gently touch the prong of a ringing tuning fork to their cheeks or hands. (They’ll feel a tickle or buzz).

Water in Cups: Distribute plastic cups of water and paper towels. Ask your students to gently touch the surface of the water with the prong tips of a ringing

tuning fork. They will see splashes and waves rippling across the water's surface. Record what they observe.

Cups and Rubber Bands: Distribute one rubber band and a plastic cup to each student. Have them wrap the rubber band across the top of the cup and then pluck it like a guitar string. Ask them what they see and hear.

Plastic Rulers: Divide your class into groups of two and distribute one plastic ruler to each group. Have one student firmly hold one end of the ruler flat against the desk so that about 3 inches extends out past the edge of the desk. Have a partner snap the free end of the ruler gently to make a sound. Have your students take turns observing the moving end of the ruler and ask them to figure out what they'll have to do to make the sound louder and softer. As they experiment by moving the ruler farther over the edge of the desk, ask them to observe what happens to the end of the ruler to make a soft sound and a loud sound. (The end of the ruler will move farther up and down when they make a loud sound).

Humming: Have students put their fingertips gently on their throats while they hum, say "Ahh," or speak. Explain that they are feeling their vocal chords, which are like rubber bands vibrating to make sounds.

Review observations that were recorded during the aforementioned experiments. What did your students see and feel with each sound source? The buzzing and tickling sensation and the blurring they may have seen are indications that something was moving back and forth, or up and down, or side to side very fast. Explain that this kind of motion is called **vibration** and that everything that makes a sound vibrates. Were there any sound sources that didn't seem to be vibrating? Explain that sometimes the vibrations are so fast that we cannot feel or see them; rather, we can only hear them, especially when the vibrations are faster than 20 times per second! Tell them that when they visit Kidspace, they will continue to observe vibrations and sounds.

ARTIST RESIDENCY

1st – 4th Grade

All classes will participate in a one-hour performance at MASS MoCA in March where Ken will demonstrate his hybrid musical instruments. Your students will also have the opportunity to work with Ken in your school. Working in groups of two to four classes at a time, Ken will demonstrate how he can amplify any object from a piece of paper to a pencil. Each session will take place for one hour.

We recommend that you prepare your students ahead of time for this exciting piece of the Kidspace program. Please make sure to do the activities in this curriculum guide before your visit with Ken. You may also want to have your students put together a list of questions to ask Ken about his work and his life as an artist and musician.

DURING YOUR KIDSPACE VISIT

1st – 4th Grade

A series of questions will be used to help guide your students in their exploration of *The New Sound of Music*. They will be asked to respond to these questions using the artwork as a source of both information and inspiration. Each question builds upon another so that students can make connections among the work on view. For instance, they might be asked the following questions when standing in front of one work of art:

- What do you think is going on in this sculpture?
- What kind of materials did the artist use to create the work? Why do you think that the artist chose to use these materials?
- When looked at together, how does the artist's work tell us a story?
- What do you think the artist was inspired by?
- What details are important to the story the artist is trying to tell us?
- How does the artist's piece relate to the last artist's work we looked at?
- Does this instrument look realistic? Have you seen something similar to it in other museums?

These guided discussions serve two purposes: to build students' visual literacy skills and to increase their knowledge of portraits. Visual literacy skills include thinking critically about what one sees, forming opinions and interpretations about artwork, and expressing in words these observations and opinions.

Following the guided discussions, students will have the opportunity to reflect on Ken Butler's art-making process. We will talk about what the artist needed to do in order to create his works of art. In particular, we will discuss how the artist recycled materials to make unusual sounds and sculptures. Students will then have the opportunity to create their own musical instruments.

AFTER YOUR KIDSPACE PROGRAM

1st – 4th Grade

Objectives

- Students will continue to explore the world of sound by learning about pitch.
- Students will learn about onomatopoeia by writing descriptive and invented words for sounds to be used in poems.
- Students will explore the world of sound effects and how they enhance the written word.
- Students will work in groups to role-play as musical instruments using their bodies and voices.
- Students will build an orchestra using their Kidspace-made musical instruments.

POST-VISIT ACTIVITY 1

Music/Science: Water Glass Chime

(Materials: 5 drinking glasses (same size and at least 6 inches tall), water, spoon)

Ask your students to recall the sounds made by the instruments at Kidspace. Explain that the artist knew in order to change the sounds made by his instruments, he had to adjust the instruments' pitch. In this experiment or demonstration, your students will learn one way to change the pitch of a sound.

Line up the glasses on your front desk or table. In the first glass, pour $\frac{1}{2}$ to 1 inch of water. Pour 2 inches of water into the second glass. Continue pouring water into the other three glasses, each time, increasing the amount of water by 1 inch. Lightly tap each glass with the spoon. Notice that the fuller glasses make lower notes while the glasses with less water make higher notes. The more water you add, the less vibration there will be in the glass. Try to play a simple tune by tapping the sides of the glasses with the spoon. If the tune doesn't sound right, you can change the **pitch** (how high or low the sound is) by adding or taking out water.

POST-VISIT ACTIVITY 2

Music/Science: Rubber Band Guitar

(Materials: one loaf pan, three markers, four rubber bands of varying thickness)

Ask your students to recall the instruments at Kidspace that had strings to pluck. Ask what the strings were made of and if they were all the same thicknesses.

Look at a picture of a stringed instrument provided in this curriculum packet. Ask how they think the sound of the different strings was made. Tell them this experiment will give them some more information.

Stretch the rubber bands lengthwise across the pan. Pluck the bands. What kind of sound do they make? They make a dull sound. Now put a marker underneath the rubber bands at each end of the pan. The markers will raise the bands above the pan. Pluck the bands again. Do they notice a difference in the sound? The sound should be clearer than it was before. (Vibrations pass through the pens to the pan. Most of the sound comes from the pan as it vibrates.) Press the third marker across the top of the bands and slide it back and forth while you pluck the bands. What do they notice about the pitch or the way in which the sound seems higher and softer? The pitch of the notes changes. (The notes get higher as you shorten the vibrating part of each band.)

POST-VISIT ACTIVITY 3

Language Arts: Noisemaker Poems

(Materials: copies of poems in the Teacher Resource section)

Onomatopoeia - the naming of a thing or action by a vocal imitation of the sound associated with it (as *buzz*, *hiss*) 2 : the use of words whose sound suggests the sense.

Ask your students to talk about the art they saw and heard at Kidspace. Remind them that the artist made instruments to have new sounds and some sounds that might have been familiar. What words would they use to describe the sounds they heard and the art they saw?

Explain the term **onomatopoeia** and how words can describe sounds, actions, and objects. Let them know that onomatopoeia is a word whose sound imitates the actual sound to which it refers such as “buzz,” “hiss”, “crash”, and “pop”. Read aloud the three poems found in the **Teacher Resource** section. Discuss how they made your students feel and what they picture in their minds. Have them pick out the words that sound like sounds.

Introduce a few of the words below. Write them on chart paper, the blackboard, or have students write them on their own paper. Ask your students to think about things that make these sounds and to try making these sounds themselves and with objects found around the room. What can make a sad sound? What sound makes you feel like laughing?

Rustle	Thump	Boing	Tap	Ding	Whoosh
Jangle	Rattle	Splash	Thud	Bang	Whistle

Ask your students to think of more words for sounds. Think of sounds animals or machines make. Add these words to the list. You can also ask students to make sounds with different objects in the room and give them a name. Encourage them to invent their own words.

Have students then write their own 4 -5 line onomatopoeia poems using words from their lists. Have them write about their visit to Kidspace from taking the bus to working on their art projects using descriptive words. For instance, "As I took a whooshing bus down the road to the museum thoughts of musical instrument rattled in my head." Practice and perform the poems in front of the class, other classes, and/or make a class book of onomatopoeia poetry.

POST-VISIT ACTIVITY 4

Language Arts: Sound Effect Storytime

(Materials: tape recorder, blank cassette, sound effects props, and a copy of *Jill Almost Misses the Bus* (A copy of the story is found in the Teacher Resource section.)

As a lead-in to this activity, ask your students to compare the artwork in Kidspace that made sound to the sculptural pieces that did not. Which pieces were more interesting to them? What does adding sound to an experience do to their understanding of an object? How does it evoke certain feelings and sensations? Ask your students to think about movies or TV shows they have watched and discuss how sound effects made the show "come alive." Explain that just as Ken used sound to add another dimension to his art, sound specialists working in the movie and television industry do the same thing. They create and record sound effects using materials that allow them to control the sounds they need. Drumming on a large flexible sheet of metal, for instance, might have made the sound of thunderstorms. If you have a flexible cookie sheet or other kind of metal, demonstrate this to the class.

Introduce the story *Jill Almost Misses the Bus* to your students and tell them that they will create the sound effects as you read along. Provide the sound effects listed in the story for your students to use (i.e., plastic knife on a dry sponge, quarter dropping on desk, water in a glass). Give each student a copy of the

story with which to following along and assign different students a sound to make. Read through the story with all the sounds being played out and do it again while taping the performance.

Another way to do this activity is to select a story of your liking and have your students determine the sound effects. First read through the story and pick out the areas in the story or the objects in it that will need sound effects (i.e., the bus door opening, the girl running after the bus.) Create a list on the board and then discuss what objects in the classroom they might use to make different sounds. They might choose to bang on their desks to make a sound of someone running and flip through a book to sound like the wind. When all your sound effects have been determined, read the story again with the students making the sounds at the appropriate times in the story. Record the story on tape and play back the finished performance.

POST-VISIT ACTIVITY 5

Creative Movement: The Human Musical Instrument

Tell your students that they will be working together to invent a musical machine. However, unlike Ken who used actual materials to invent his instruments, they will be using only their bodies and their voices.

Divide your class into groups of two. Each student will decide on a body movement and a sound to go with it. For instance, he/she might wiggle his/her arm while whistling, and the other student might stomp his/her foot while humming. The job of each pair is to create an interesting orchestra of sound and movement by trying different ways to combine their sounds and movements. Give them time to practice. Once they have their "musical instrument" playing smoothly, they should come up with a name for it. They can take turns showing each other what they've invented in their own "Class Museum of Music."

Any combination of students can work together to invent a musical instrument in this way. Two pairs can combine their ideas to make four different movements and four different sounds. Ask them how they could vary the pitch (high and low sound with their voices. It is possible to make one huge class instrument with every student having a unique movement and sound. As a group, decide on a name for the instrument. (Example: "The Noise-in-a-tor," or "The Third Grade Sound Machine")

POST-VISIT ACTIVITY 6

Music / Art: Classroom Orchestra

(Materials: a variety of found objects, glue, scissors, rubber bands, tape)

As part of their activity at Kidspace, your students created their own musical instruments. Have them use them to create a classroom orchestra. Have them try combining sounds and movements using their instruments. Perhaps put on a performance for other classes or for parents.

You might also have your students add to the orchestra by creating additional instruments. Break your class down into three groups: The Perky Percussions, The Wacky Winds, and The Silly Strings. Tell your students that just like Ken's work at Kidspace, they will be inventing new ways to make music with everyday objects. Review the three main types of instruments. Some ideas for materials and instruments are listed below. To gather materials for this project, send the form letter home with your students asking parents to provide a variety of materials. **(There is a form letter in the Teacher Resource section.)**

PERCUSSION INSTRUMENTS

- Film canisters, oatmeal boxes, yogurt containers, or anything else that can be filled with different objects to make different percussion sounds.
- Old sets of keys, spoons, odd pieces of metal objects to jangle or hit
- Wrapping paper or paper towel tubes of different sizes to fill with rice or beans and shake
- Small pieces of different types of wood to bang together
- Small cans hanging together by string to make gongs

WIND INSTRUMENTS

- Plastic soda bottles and other empty bottles of different sizes to blow into
- Balloons to blow up and let the air out a little at a time
- Cardboard or plastic tubes to spin around
- Straws to blow into
- Combs covered with wax paper that vibrates when blown on
- Cardboard tubes with wax paper on one end to make crinkle sound when blown on
- Flexible tubing with a funnel at one end

STRING INSTRUMENTS:

- Rubber bands stretched across the back of a chair
- Rubber bands of varying thicknesses placed around any box
- Milk cartons with yard stick and string attached
- Different thicknesses of fishing line stretched across different size boxes or cans

EXTENSION: RUBRICS AND WRITING

(Materials: worksheets in Teacher Resource section)

*Teachers who are familiar with **Project Read's Written Expression** could use this assignment to write a procedural paragraph.*

To have your students gain more experience following directions and writing, you might complete the following activity. Distribute copies of the directions on how to make a musical instrument and the essay assignment worksheets (found in the teacher Resource section). Read over the directions with the students before they create their musical instrument. Also read aloud the rubric, if you plan on using one. Discuss the requirements of this activity and how your students can earn points so that everyone has the chance to meet the highest standards. The rubric can serve as a tool to show students and parents what the lesson is all about and as a form of assessment.

After creating their musical instruments, have your students complete the essay assignment. The essay will be about their experience making and playing their instruments.

POST-VISIT ACTIVITY 7

Language Arts: Revisiting the KWL Chart

At the conclusion of the Kidspace semester, the KWL chart from the Pre-Visit Activities section should be completed. Ask your students to finish filling in the last column, "What I Learned." This can be done together as a class, or students can write their responses as a form of assessment.

EXTENSION ACTIVITIES

- Design a picture book of ordinary objects that make sounds.
- Divide a piece of paper into four sections. Listen to four different types of music. Draw a picture or "mood" to go along with the music. Discuss.
- Investigate how the human ear works. Draw and label a diagram. Using the diagram, explain or write how humans hear sound.
- Personification: Write or tell a story from a sound's point of view. Explain how the sound was made and how you travel from one place to another.
- Research the history of music and how men and women of long ago made instruments.
- Write a song to be played on the musical instrument that you invented.
- Experiment with sound as it travels through different states of matter. Compare the same sound being made through air, water, and wood.

THE SCIENCE AND ART OF MUSIC

5th – 8th Grade Activities

OVERVIEW

In the classroom and at Kidspace, students in grades 5 - 8 will examine different ways artists create musical instruments through looking at sculpture and paintings, class discussions, and science and art experiments on sound. They will also discuss recycling and how artists might use recycled materials for art supplies.

At Kidspace, students will discuss the sculptural work of Ken Butler. They will look for ways in which the artist used found objects and parts of traditional instruments to create musical instruments. They will have the chance to play some instruments and to experiment with sound. Students will then make their own hybrid instruments.

ACTIVITY SCHEDULE

Before Your Kidspace Program

10. Discussion: Introduction to Topic and Kidspace Semester
11. Art / Music: Viewing and Hearing Musical Instruments
12. Music: Name That Instrument
13. Science: Sound Experiments

Artist Residency at Your School

Preparing for Artist Residency

During Kidspace Visit

3. Guided Discussion
4. Art-Making Activity: Making Musical Instruments

After Your Kidspace Program

12. Language Arts: Noisemaker Poems
13. Music / Language Arts: Moody Music
14. Music / Language Arts: Sending a Message Thru Music
15. Music / Art: Classroom Orchestra

BEFORE YOUR KIDSPACE PROGRAM
5th – 8th Grade

Objectives

- Students will distinguish the importance of using perspective to view the Kidspace exhibition featuring instruments by Ken Butler.
- Students will recognize the differences in producing pitch and apply their knowledge to their experiences at Kidspace.
- Students will explore and research musical instruments from around the world and from different time periods in order to prepare for their visit to Kidspace and for post-visit activities.

PRE-VISIT ACTIVITY 1

Discussion: Introduction to Topic and Kidspace Semester

To begin your Kidspace unit, pass out the Human Treasure Hunt activator (found in **the Teacher Resource** section). In this activity, your students are given a description of the “treasures” that they will need to locate at the beginning of this semester’s Kidspace program. Allow about 15 minutes either within the classroom or among the school for students to complete the activity, then review. The Treasure Hunt provides you with data about the extent of background knowledge and experience your students will bring to the topic of music.

When you regroup, review their findings and ask your students for ideas of what the topic of their Kidspace experience might be. Introduce the topic of the semester: **hybrid** musical instruments. *The New Sound of Music* exhibition will feature Ken Butler’s musical instruments made from recycled materials or found objects, sometimes blending with parts of traditional instruments. Explain to your students that Ken can be considered an inventor because he changes the way traditional musical instruments look and sound to come up with something new. As you explain the theme and semester, you may want to show the examples of Ken’s work (see transparencies or CD-Roms).

Hybrid: the combination of more than two things to create something new. In science, the combination of two species to create a new one, such as a jackass and a mare form a mule.

Ask your students to recall what they saw at Kidspace in the past. Recall the **collages** they made as part of the *Wind Farm* and *Susan Leopold* exhibitions, and

discuss how a collage is combination of different materials and objects put together in a new way. Recall that some students made their collages three-dimensional because they had pieces sticking up or hanging off of the paper. Explain and show how Ken Butler's artwork is also like collages in that it is a combination of different materials to make art.

Recall the **kinetic sculptures** they saw and made at Kidspace in the *Wind Farm* exhibit. Ken's art also has moving parts in some of his instruments. Remember Bill Bergman's sculpture where you had to turn a crank in order to make wind that would make the old-fashioned camera move? Some of Ken's pieces will be three-dimensional sculptures that have parts that move.

Explain to your students that although the art they will see this semester will contain elements similar to the art they've seen and made at Kidspace on previous visits, this time they will not only be asked to look very carefully at what they see, they will be asked to listen very carefully to what they hear.

Tell your students that before their visit to Kidspace, they will participate in activities and experiment with sound the way Ken does to learn about sound and how sound is connected to the art world. They will then visit Kidspace to see how the artist connects sound and music to the visual arts. During their visit, they will participate in an art project involving creating their own musical instruments. After their visit, they will continue to explore the world of sound and art and they will invent additional musical instruments. They will also have the opportunity to meet with Ken who will demonstrate how to amplify any ordinary objects.

PRE-VISIT ACTIVITY 2

Art /Music: Viewing and Hearing Musical Instruments

(Materials: Overhead projector, computer, transparencies or CD-ROMs, CD player, CDs, Ken Butler booklet)

Images: Now that your students are aware of the Kidspace program, have a discussion on the art of musical instruments (see image list and suggested questions on the next page). We have provided you with overhead projector transparencies and CD-ROMs with images of instruments (check them out at your school's main office). For this activity you will start by relating back to images your students saw last year with the *Magic Gardens* exhibition, connecting their past understandings about realism vs. fantasy in artwork of gardens to images of both realistic and imaginative musical instruments.

Transparency Images and Questions

Images 1 and 2: (Realism) Herb Garden - Bristol, England and Monet's *Water Lilies and Japanese Bridge*, 1899

Discuss the two different types of gardens and how they portray realistic versions of gardens. What kinds of gardens are these? What kinds of plants do you recognize? Would you be likely to find either of these gardens in our world?

Images 3 and 4: (Fantasy) Timothy Basil Ering's *The Story of Frog Belly Rat Bone*, 2003 and Emily Cheng's *Lotus Tangle, Summer*, 2004

How did these two artists change your idea of what a garden might look like? What elements in these paintings are similar to Images 1 and 2? Discuss real versus fantasy.

Image 5 and 6: *Egyptian tomb painting of musicians*, c. 1542-1295 BCE and *Group of seated female musicians*, Tang dynasty (618-906), China

Does this painting show us a real scene? How is it showing a real event? What is happening in the painting? Describe the people and the musical instruments.

Image 7: *Three Musicians* by Pablo Picasso, 1921 (Philadelphia Museum of Art)

Does this painting show us a real scene? How did this artist take the idea of musicians having a musical performance and change it around to make it his own? Discuss Picasso's use of cubism (a style of painting, drawing, or sculpture in which objects are represented by cubes and other geometric shapes). What musical instruments do you see?

Images 8 and 9: *Bride and Groom* by Marc Chagall, 1939 and *Lit Et Deux Tables de Nuit* by Salvador Dali, 1983

Can you find any musical instruments in either of these paintings? Do these images seem realistic? What do you think is happening? What do you think the instruments sound like? How are these and Picasso's paintings different from Image 5 of the Egyptian tomb painting? From where did the artists get their ideas?

Image 10: *Freon Lyre* by Mark Stewart

Is this a musical instrument? What do you think it is made from? How would you play it? From where did Mark Stewart get the idea for this instrument? In which images did you see a similar instrument? (#5, #6, and #7)

Transparencies Con't.

Image 11: Violin

What is this instrument? How do you make music with it? Discuss its shape, line, and parts (body, neck, scroll bridge, tuning pegs, strings).

Image 12: Violin and Guitar by Pablo Picasso, 1912 (Hermitage Museum)

Can you find the instrument parts in the painting? What did Picasso do to the violin and guitar? (He took a traditional violin and guitar apart and added other things to the picture to create a new version of these instruments). Compare to Image 6.

Images 13 -16: Ken Butler's examples of musical instruments

Are these musical instruments? What instruments do you recognize? How are they different? What did the artist do to create his own, new kind, of instrument? What other objects did he use to make his instruments? How do you imagine they work and sound?

Listening: You may also choose to show your students images of some traditional musical instruments and play recordings of the sounds they make. (This material can be found on The Dallas Symphony Orchestra's website at <http://www.dsokids.com/2001/instrumentchart.htm>). Explain that most Western traditional instruments can be put into three main groups: **percussion** (hitting or shaking makes the sound), **wind** (a vibrating column of air makes the sound), and **string** (plucking, hitting, or bowing the strings makes the sound). **Keyboards** could be considered both a percussion and string instrument, and therefore, have their own category. Challenge students to put the images you show into one of the four groups of instruments.

Ken Butler's Artwork: Show the image of Ken's work again, playing the sounds they make using the CDs provided. Discuss with your students which instruments they think the artist incorporated, if any, and to describe what type of sounds they hear. Do they hear traditional sounds they can connect to traditional instruments or do they hear new sounds? Does Ken's artwork fit into one of the three traditional categories of musical instruments or do they belong in a new group of instruments?

Explain that some sounds are made electronically. How do these instruments fit in?

PRE-VISIT ACTIVITY 3

Music: Name That Instrument

The New Sound of Music exhibition features instruments that incorporate the old with the new; sometime parts of actual instruments, other times pieces of ordinary objects. An axe might become a violin, a street sign into a guitar, and a mop into cello. (You might show examples using the transparencies or CD-Roms.) To prepare for being able to recognize instruments, play **Name That Instrument** with your students. The object is to get your students to name as many instruments as they can think of. Write them down on the board or chart paper so everyone can see the list. When they have exhausted their list, ask your students if they are familiar with all the instruments listed. If they are not, ask for input from the group. Then list an instrument they might not be familiar with such as: glockenspiel (bells), timpani (kettledrums), piccolo (small flute), and bassoon (a large double-reeded woodwind). Use dictionaries, encyclopedias, the library, and the Internet to have your students research these new instruments.

Extension Activities

Students can work independently or in small groups to research one of the following native instruments and be able to answer these three important questions:

- What in the world is it?
- Where in the world did it come from?
- What in the world does it look like?

Instrument List: (Provide your students only with the name of the instrument. The place the instrument originates is for your information.)

- Aplehorn (Switzerland)
- Bagpipe (Scotland)
- Balalaika (Russia)
- Cimbalon (Hungary)
- Gusla (former Yugoslavia)
- Marimba (Guatemala)
- Sitar (India)
- Spike Fiddle (Thailand)
- Steel Drums (West Indies)
- Trompong (Bali)
- Ukelele (Hawaii via Portugal)

You might also extend this project into one on geography. Have your students map out where each instrument comes from on a large world map.

Continue to explore different cultural instruments and have your students research early instruments developed by the ancient Chinese, Egyptians, or Greeks. Ask them to figure out the materials these early cultures used for their instruments, such as bone, animal hair, and horns. (At the MFA in Boston, a recent exhibition of ancient Asian instruments included a Tibetan double-headed drum made out of two human skull caps!)

PRE-VISIT ACTIVITY 4

Science: Sound Experiments

Please note that the following pre-visit activities/experiments are designed to provide a wide range of experiences that will lead your students to a greater understanding of sound and its importance to the Kidspace artist. Choose activities that are appropriate to fit the needs of your students.

A. What Causes Sound?

(Materials: tuning fork, water, paper towels, rubber bands, plastic cups, and plastic rulers)

Anything we call a sound begins when one object bumps or hits against another and they both begin to vibrate. Usually these vibrations are so small and rapid, that we do not see them or feel them. This activity will introduce several examples of objects that vibrate to create sounds. These experiments may be done in groups or as demonstrations. There is a worksheet called “What Causes Sound?” in the **Teacher Resource section** that you might use along with this activity.

Explain that in order for the Kidspace artists to make musical instruments that produce sound, they first need to know what causes sounds to be heard. Ask your students what they think causes sound and record their answers on the board, on the KWL Chart, or you may use the “What Causes Sound?” worksheet as the experiments are conducted. Explain that they will be observing a variety of objects to discover what causes sound. As they observe each object, they will record what they hear, see, and feel. For younger students, you may want to record all the observations on one class chart or on the board.

Tuning Fork: Demonstrate how to hold a tuning fork by its stem, and strike one of its prongs with a rubber striker to make it ring. Warn the students that the prongs may become bent or broken if a tuning fork is hit too hard against an

object. Allow your students to experiment with the tuning fork. Ask them to describe what they see happening while the tuning fork is making its sound. (The prongs move back and forth very quickly). Ask what they feel when they gently touch the prong of a ringing tuning fork to their cheeks or hands. (They'll feel a tickle or buzz).

Water in Cups: Distribute plastic cups of water and paper towels. Ask your students to gently touch the surface of the water with the prong tips of a ringing tuning fork. They will see splashes and waves rippling across the water's surface. Record what they observe.

Cups and Rubber Bands: Distribute one rubber band and a plastic cup to each student. Have them wrap the rubber band across the top of the cup and then pluck it like a guitar string. Ask them what they see and hear.

Plastic Rulers: Divide your class into groups of two and distribute one plastic ruler to each group. Have one student firmly hold one end of the ruler flat against the desk so that about 3 inches extends out past the edge of the desk. Have a partner snap the free end of the ruler gently to make a sound. Have your students take turns observing the moving end of the ruler and ask them to figure out what they'll have to do to make the sound louder and softer. As they experiment by moving the ruler farther over the edge of the desk, ask them to observe what happens to the end of the ruler to make a soft sound and a loud sound. (The end of the ruler will move farther up and down when they make a loud sound).

Humming: Have students put their fingertips gently on their throats while they hum, say "Ahh," or speak. Explain that they are feeling their vocal chords, which are like rubber bands vibrating to make sounds.

Review observations that were recorded during the aforementioned experiments. What did your students see and feel with each sound source? The buzzing and tickling sensation and the blurring they may have seen are indications that something was moving back and forth, or up and down, or side to side very fast. Explain that this kind of motion is called **vibration** and that everything that makes a sound vibrates. Were there any sound sources that didn't seem to be vibrating? Explain that sometimes the vibrations are so fast that we cannot feel or see them; rather, we can only hear them, especially when the vibrations are faster than 20 times per second! Tell them that when they visit Kidspace, they will continue to observe vibrations and sounds.

B. Sounds Are All Around Us

(Materials: paper, pencils or crayons)

Explain that when they go to Kidspace, your students will be asked to listen to different kinds of sounds made by the artwork in the exhibition. Some sounds may be familiar to them and some sounds may be those that they've never heard before. Tell them that in order to practice for their listening experience at Kidspace, that they will be spending the next few minutes listening to sounds around them. Younger students can either draw pictures of the things they hear making sounds or discuss what they heard when the time limit, that you establish, is up. Older students can record the sounds they hear. When you are finished listening, discuss what everyone heard, while making a master list on chart paper or the board. Students can then classify the sounds. Suggested questions:

- Which ones were the loudest?
- Which were the softest sounds?
- Which sounds were pleasant?
- Which sounds were unpleasant?
- Which sounds were made by people?
- Which sounds were made by machines or objects?

Ask your students of other ways they can think of to classify the sounds they heard (happy sounds, sad sounds, etc.). You can begin this lesson in the classroom and then pick another environment (gym, lunch room, playground) in which to do this same activity. Compare the list of sounds heard in the second environment with those from the first.

C. Pitch: It is Not A Knuckleball or Curve

Ken Butler produces sound from the vibration of the materials making up his artwork. Depending on how hard the instruments are played, the pitch (the highness or lowness of the sounds that you hear) will sound softer or louder. Pitch not only occurs with instruments, but also with singing and talking. If you listen carefully you can hear the pitch of your voice rises and falls even when you are just talking with friends. Ask your students to explore what happens to their vocal cords when they speak. Have them speak normally, then whisper, and then yell. By placing their fingertips on their throat while they do each of these experiments, they will feel a change in their vocal cords. Explain that when you make a high pitched sound, your muscles in your larynx stretch your vocal

cords, which tightens them and brings them closer together. When you make a lower sound, your vocal cords relax a bit and move farther apart. You can control the pitch of your voice by tensing or relaxing your vocal cords.

D. Water Glass Chime

(Materials: 5 drinking glasses (same size and at least 6 inches tall), water, spoon)

Explain that the Kidspace artist knows that in order to change the sounds made by his instruments, Ken has to adjust the instruments' pitch. In this experiment or demonstration, your students will learn one way to change the pitch of a sound.

Line up the glasses on your front desk or table. In the first glass, pour $\frac{1}{2}$ to 1 inch of water. Pour 2 inches of water into the second glass. Continue pouring water into the other three glasses, each time, increasing the amount of water by 1 inch. Lightly tap each glass with the spoon. Notice that the fuller glasses make lower notes while the glasses with less water make higher notes. The more water you add, the less vibration there will be in the glass. Try to play a simple tune by tapping the sides of the glasses with the spoon. If the tune doesn't sound right, you can change the **pitch** (how high or low the sound is) by adding or taking out water.

E. Rubber Band Guitar

(Materials: one loaf pan, three markers, four rubber bands of varying thickness)

Remind your students that some of the instruments at Kidspace will have strings to pluck to make sound. Look at a picture of a stringed instrument provided in this curriculum packet. Ask how they think the sound of the different strings was made. Tell them this experiment will give them some more information.

Stretch the rubber bands lengthwise across the pan. Pluck the bands. What kind of sound do they make? They make a dull sound. Now put a marker underneath the rubber bands at each end of the pan. The markers will raise the bands above the pan. Pluck the bands again. Do they notice a difference in the sound? The sound should be clearer than it was before. (Vibrations pass through the pens to the pan. Most of the sound comes from the pan as it vibrates.) Press the third marker across the top of the bands and slide it back and forth while you pluck the bands. What do they notice about the pitch or the way in which the sound seems higher and softer? The pitch of the notes changes. (The notes get higher as you shorten the vibrating part of each band.)

ARTIST RESIDENCY

5th – 8th Grade

All classes will participate in a one-hour performance at MASS MoCA in March when Ken will demonstrate his hybrid musical instruments. Your students will also have the opportunity to work with Ken in your school. Working in groups of two to four classes at a time, Ken will demonstrate how he can amplify any object from a piece of paper to a pencil. Each session will take place for one hour.

We recommend that you prepare your students ahead of time for this exciting piece of the Kidspace program. Please make sure to do the activities in this curriculum guide before your visit with Ken. You may also want to have your students put together a list of questions to ask Ken about his work and his life as an artist and musician.

DURING YOUR KIDSPACE VISIT

5th – 8th Grade

A series of questions will be used to help guide your students in their exploration of *The New Sound of Music*. They will be asked to respond to these questions using the artwork as a source of both information and inspiration. Each question builds upon another so that students can make connections among the work on view. For instance, they might be asked the following questions when standing in front of one work of art:

- What do you think is going on in this sculpture?
- What kind of materials did the artist use to create the work? Why do you think that the artist chose to use these materials?
- When looked at together, how does the artist's work tell us a story?
- What do you think the artist was inspired by?
- What details are important to the story the artist is trying to tell us?
- How does the artist's piece relate to the last artist's work we looked at?
- Does this instrument look realistic? Have you seen something similar to it in other museums?

These guided discussions serve two purposes: to build students' visual literacy skills and to increase their knowledge of portraits. Visual literacy skills include thinking critically about what one sees, forming opinions and interpretations about artwork, and expressing in words these observations and opinions.

Following the guided discussions, students will have the opportunity to reflect on Ken Butler's art-making process. We will talk about what the artist needed to do in order to create his works of art. In particular, we will discuss how the artist recycled materials to make unusual sounds and sculptures. Students will then have the opportunity to create their own musical instruments.

AFTER YOUR KIDSPACE PROGRAM

5th – 8th Grade

Objectives

- Students will learn about onomatopoeia by writing descriptive and invented words for sounds to be used in poems.
- Students will explore how music can affect mood.
- Students will interpret the underlying theme or message in artwork, lyrics and verses.
- Students will build an orchestra using their Kidspace-made musical instruments.

POST-VISIT ACTIVITY 1

Language Arts: Noisemaker Poems

(Materials: Copies of poems in Teacher Resource section)

Onomatopoeia - the naming of a thing or action by a vocal imitation of the sound associated with it (as *buzz*, *hiss*) 2 : the use of words whose sound suggests the sense.

Ask your students to talk about the art they saw and heard at Kidspace. Remind them that Ken made his instruments to have new sounds and some sounds that might have been familiar. What words would they use to describe the sounds they heard and the art they saw?

Explain the term **onomatopoeia** and how words can describe sounds, actions, and objects. Let them know that onomatopoeia is a word whose sound imitates the actual sound to which it refers such as “buzz,” “hiss”, “crash”, and “pop”. Read aloud the poems found in the **Teacher Resource** section. Discuss how they made your students feel and what they picture in their minds. Have them pick out the words that sound like sounds.

Introduce a few of the words below. Write them on chart paper, the blackboard, or have students write them on their own paper. Ask your students to think about things that make these sounds and to try making these sounds themselves and with objects found around the room. What can make a sad sound? What sound makes you feel like laughing?

Rustle	Thump	Boing	Tap	Ding	Whoosh
Jangle	Rattle	Splash	Thud	Bang	Whistle

Ask your students to think of more words for sounds. Think of sounds animals or machines make. Add these words to the list. You can also ask students to make sounds with different objects in the room and give them a name. Encourage them to invent their own words.

Have students then write their own 4 -5 line onomatopoeia poems using words from their lists. Have them write about their visit to Kidspace from taking the bus to working on their art projects using descriptive words. For instance, "As I took a whooshing bus down the road to the museum thoughts of musical instrument rattled in my head." Practice and perform the poems in front of the class, other classes, and/or make a class book of onomatopoeia poetry.

Extension Activities

Give examples of how onomatopoeia is used in advertising as a mnemonic so consumers will remember products. For example:

- Rice Crispies: "Snap, crackle, pop" (noise when you add milk)
- Alka Seltzer: "Plop, plop, fizz, fizz," (noise when you add to water)
- Chili's: "Babyback,babyback ribs" (noise when you grunt excitedly for food)

Have your students create a product with a slogan that uses onomatopoeic words and create an ad campaign.

Using dictionaries, send students on an onomatopoeia search. They must try to find words from A to Z that are examples of onomatopoeia. Have them illustrate each word

POST-VISIT ACTIVITY 2

Music / Language Arts: Moody Music

(Materials: CD Player, CDs, markers, colored pencils or pastels, paper)

Ken Butler's instruments at Kidspace when played or viewed evoke a particular feeling or mood. For instance, perhaps when listening to Ken's *Urban Grand Piano*, your students might have felt tense or joyous, depending on the individual. Begin a discussion on how the different instruments they saw at

Kidspace made them feel. Ask them if they ever noticed how music is used in movies and television to provoke a feeling. Perhaps they have seen a scary movie like *Jaws* or *Friday the Thirteenth*, and might talk about the music used to indicate that something bad was going to happen.

Ask your students to discuss the different kinds of music they like to listen to. Are there times when they want to listen to a particular type of music? Sometimes we just want easy listening music, like when we are in the dentist's office to help us relax. Other times we want to listen to noisy music that makes us want to dance. Music plays an important part in creating mood, and adds a soundtrack to our lives. Are there certain songs they listen to that remind them of particular events in their lives, evoking memories and good feelings? (You might remind your students of their experience last year with Tim Rollins who played classical music as your students created watercolor flowers. Did this music influence their art making?)

Choose a music selection (use either "Voices of Anxious Objects" by Ken Butler and his hybrid instruments or "Days of Future Passed" by the Moody Blues and the London Festival Orchestra). Turn off or lower your classroom lights and have your students listen to the selection, following which they should jot down the feelings that the music evokes. After the piece has played, turn the lights back up and ask your students to create a drawing that illustrates their feeling while listening to the selection. Replay the selection as they draw. Have your students share their drawings with their classmates.

POST-VISIT ACTIVITY 3

Music / Language Arts: Sending a Message Thru Music

(Materials: CD Player, CD, song lyrics and poems (found in Teacher Resource))

Once again, make use of Ken Butler's CD "Voices of Anxious Objects" by exploring the message he is sending us via his songs. Listen to "Building a Desert Blizzard" and "Stuck Behind a Truck." Discussion questions:

- How does Ken in "Building a Desert Blizzard" create a desert-like setting?
- What sounds does he use to make us think of the desert?
- What might a "desert blizzard" be?
- How does it feel to be stuck behind a truck going up Route 2? Does Ken's "Stuck Behind a Truck" make you feel the same way?
- What message is Ken sending you about being stuck behind a truck?
- What instruments does Ken use in these songs to make you better understand their messages?

Continue to explore messages in music and lyrics by reading the lyrics to a song by Paul Simon, or a poem by Shel Silverstein or Robert Frost.

POST-VISIT ACTIVITY 4

Music / Art: Classroom Orchestra

(Materials: a variety of found objects, glue, scissors, rubber bands, tape)

As part of their activity at Kidspace, your students created their own musical instruments. Have them use them to create a classroom orchestra. Have them try combining sounds and movements using their instruments. Perhaps put on a performance for other classes or for parents.

You might also have your students add to the orchestra by creating additional instruments. Have your students follow the steps of an engineering design process. They should first brainstorm ways they can make a musical instrument, thinking about Ken's work in Kidspace. Then they sketch their musical instrument design and construct it using materials they have gathered. Then they should test their instruments by playing simple tunes on them. To gather materials for this project, have your students first create a list of materials they would like to use and write a group letter to their families to request donations of materials. Some material suggestions are on the next page.

PERCUSSION INSTRUMENTS

- Film canisters, oatmeal boxes, yogurt containers, or anything else that can be filled with different objects to make different percussion sounds.
- Old sets of keys, spoons, odd pieces of metal objects to jangle or hit
- Wrapping paper or paper towel tubes of different sizes to fill with rice or beans and shake
- Small pieces of different types of wood to bang together
- Small cans hanging together by string to make gongs

WIND INSTRUMENTS

- Plastic soda bottles and other empty bottles of different sizes to blow into
- Balloons to blow up and let the air out a little at a time
- Cardboard or plastic tubes to spin around
- Straws to blow into
- Combs covered with wax paper that vibrates when blown on
- Cardboard tubes with wax paper on one end to make crinkle sound when blown on
- Flexible tubing with a funnel at one end

STRING INSTRUMENTS:

- Rubber bands stretched across the back of a chair
- Rubber bands of varying thicknesses placed around any box
- Milk cartons with yard stick and string attached
- Different thicknesses of fishing line stretched across different size boxes or cans

Teacher Resources – General Background: Sound & Music Pre-K – 8th Grade

**Boston Museum of Science, 1997 Teacher's Guide
Scott Foresman Science, Discover the Wonder 1996: Module E
"Sounds All Around"**

What is Sound?

Sound is not an easy concept to define. More than 2000 years ago, Aristotle suggested that sound travels to our ears through the air. In the 1600's, Robert

Boyle showed that a ringing bell could not be heard in a jar with the air removed. For any sound to be heard, it must travel through a medium. Sound usually reaches our ears by traveling through the air. To the physicist, sound is a form of energy generated through the transformation of another form of energy, usually motion. It can move, do work, and it will dissipate over time and distance. For most of us non-physicists, what a sound “sounds like” is the most important characteristic of sound. From a lifetime of experience, we are familiar with whistle, bangs, voices, rustles, splashes, and millions of other sounds.

Sound Sources

Strike a tuning fork and a pure tone rings out. Observe the tines closely and you’ll see they are moving so fast that they blur before your eyes. This motion or vibration is the source of the tuning fork’s sound. Stop the vibration by touching the tines with your fingers and sound stops immediately. Every sound is caused by the vibration of a sound source. Drum your fingers on a desk and you will make a sound. The table’s vibrations may be too fast or too gentle for you to feel, but they are there none-the-less.

How Sound Travels

Think of a ruler held over the edge of a desk and snapped so that it produces a humming sound. The ruler vibrates. Each time it moves upwards, it compresses the air above it and thins out the air below it. Within a tiny fraction of a second, the compressed molecules above the ruler, expand and compress the air beyond them. These molecules in turn expand and compress the air beyond them, and the process continues spreading outwards. Meanwhile, the ruler reverses direction and begins the process in the opposite direction. The individual air molecules move only a tiny distance, just enough to bump into their neighbors and transfer the force of the disturbance across the room, molecule by molecule. Although there are literally billions and billions of air molecules between the ruler and your ear, the sound travels across the room in this manner at about 1,200 feet per second. Sound can travel through solids and liquids even faster because the molecules in these forms of matter are much closer together than in air. The only place sound cannot travel is through empty space, where there are no molecules to transfer the energy over distance.

What is music?

Anything that can produce even, controlled sound vibrations can be a musical instrument. Stringed instruments have taut strings that vibrate when plucked (guitar), bowed (violin), or hit (piano). Wind and brass instruments produce sound when the air inside them is made to vibrate regularly. The pitch of a wind

instrument is controlled by opening and closing holes along the instrument's body to change the length of the vibrating air column. Sound is created in a brass instrument when the player vibrates his or her lips against the mouthpiece. Blowing harder or softer, and changing the shape of the mouth, control the pitch and volume. Percussion instruments include those that make sound as a result of being hit or shaken. Most have a hollow space inside so that the sound can resonate.

Music communicates the emotions and thoughts of the composer and performers to its listeners. We know ancient civilizations experimented with the science of sound to create music. Paintings and stone carvings included pictures of instruments such as harps, lutes, horns, and drums. Many instruments originated in Egypt. Castanets were probably used by Egyptians during religious ceremonies. The 4th century B.C. Greek philosopher Plato incorporated music into his education philosophy by requiring it as a means to teach students discipline as well as lead them to enlightenment. Even today, music is considered the universal language because music evokes similar feelings in people of all cultural backgrounds.

Teacher Resources – Books Pre-K – 8th Grade

Crash! Bang! Boom! by Peter Spier – A delicate panoply of sounds made by everything from a tugboat to a tuba is illustrated by Caldecott Medal winner, Peter Spier. His exuberant pictures display the unerring color sense, imagination, and attention to detail that have made his work a favorite with hundreds of thousands of children. Ages 3 – 6.

Ken Butler: Hybrid Visions, F. Donald Kenney Museum – An overview of Ken Butler’s exhibit and a look at the man behind the art. (This book is available in your school’s main office)

Making Musical Things: Improvised Instruments by Ann Wiseman – Includes directions for constructing a variety of musical instruments from easily obtainable materials such as milk cartons and embroidery hoops. Ages 9 – 12.

Musical Instruments by Claude Delafosse – A wonderful book that exposes young children to a variety of musical instruments. Ages 4 – 8.

Musical Instruments Around the World by Meryl Doney – Introduces children to musical instruments from a variety of countries. Ages 4 – 8.

Musical Instruments from A to Z by Bobbie Kalman – A series of alphabet books based on those subjects which interest young children. Ages 4 – 8.

Musical Instruments You Can Make by Phyllis Hayes – Instructions for making a variety of musical instruments from such items as paper plates, bottles, electric light bulbs, coffee cans, and rubber bands.

Science Book of Sound by Neil Ardley – Simple experiments to demonstrate basic principles of sound and music. Ages 4 – 8.

Science Explorer: Sound and Light by Jay Pasachoff – Science series offers explorations into sound and light.

Science Interactions, Glencoe-McGraw Hill, 1998 – Deals with many topics in science including sound and hearing.

Sound by Karen Lee Siepak – A non-fiction book full of sound activities. Grades 4 – 6.

Sound: Stop Faking It! Finally Understanding Science So You Can Teach It by William C. Robertson and Brian Diskin – National Science Teachers Association 2003. This series of books helps you understand basic science concepts and puts to rest the myth that you can't understand science because it's too hard.

Sounds All Around; Scott Foresman – “Discover the Wonder” Series, Module E.

Sounds All Around by Wendy Pfeffer – Beginning with snaps, claps, and whistles, Pfeffer describes how sound waves vibrate through the air, and how tiny bones in the ear vibrate. She also explains how animals hear, from bats and echolocation to whales using sound waves to locate their young in the ocean, and notes that sound waves travel through the solid ground as well as air and water. Ages 4 – 8.

The Very Quiet Cricket by Eric Carle – A cricket is born who cannot talk! A bigger cricket welcomes him to the world, then a locust, a cicada, and many other insects, but each time the tiny cricket rubs his wings together in vain: no sound emerges. In the end, however, he meets another quiet cricket, and manages to find his "voice." Ages 4 – 8.

Zin! Zin! Zin! A Violin by Lloyd Moss - A clever, jazzy verse presents a helpful intro to each orchestra instrument-how some are alike but rather more are different. He starts with the trombone's "mournful moan," playing solo; then adds a trumpet, French horn and cello-all sounding forth a signature "hello." Each musical portrait abounds with perfectly chosen, alliterative sounds. With every new instrument joining the throng of diligent players practicing song, Moss incorporates numbers and stops only when his team finally reaches a "chamber group of ten." So the book can be used as a counting tool. Ages 4 – 8.

Teacher Resources – Websites Pre-K – 8th Grade

Acoustical Society of America – Links to sounds in the atmosphere, instruments, insects, and animals. <http://asa.aip.org/sound.html>

Boston Symphony Orchestra – Interactive pages on sound, instruments, and the orchestra. <http://www.bso.org/>

Dallas Symphony Orchestra – Musical fun for children, parents, and educators. A great resource for images and sounds of traditional instruments. http://dsokids.com/2001/rooms/DSO_Intro.html

Instrument Encyclopedia – Beginning with more than 140 artifacts from the Stearns Collection at the University of Michigan, this resource features musical instruments from around the world. The purpose of this site is to allow you to explore the diversity and creativity of musical traditions as you browse the gallery or search for a favorite instrument. <http://www.si.umich.edu/chico/instrument/>

Jazz Kids – Activities for kids featuring news and reviews, kids' writing, games, trivia, and more! <http://pbskids.org/jazz/>

Ken Butler's Hybrid Visions
<http://www.mindspring.com/~kbhybrid/>

New York Philharmonic Kidzone – Information about composers and members of the orchestra. Explore all kinds of instruments, invent one of your own, and so much more. <http://www.nyphilkids.org/main.phtml>

Science Museum of Minnesota – Sounds, activities, and discussion boards. <http://www.sci.mus.mn.us/sound/>

The Science of Sound – *5th Grade Applied Science Students from Bethune Academy*
The Franklin Institute – Philadelphia, PA.
<http://www.fi.edu/fellows/fellow2/apr99/soundindex.html>

Virtual Museum of Music Inventions – Samples of musical instruments done by students. Information on sound and resources for teachers.

<http://www.musicinventions.org/>

Young Composers – This site allows young composers to share their music and to talk to other young musicians. <http://www.youngcomposers.com/>

Young Engineers' Club – A science and engineering room.

<http://education.usace.army.mil/clubhouse/house.html>

Teacher Resources – Pre-Visit Activity 5 Pre-K & Kindergarten

Mary Had A Little Lamb

Mary had a little lamb,
Little lamb, little lamb,
Mary had a little lamb,
Its fleece was white as snow

And everywhere that Mary went,
Mary went, Mary went,
Everywhere that Mary went
The lamb was sure to go

It followed her to school one day
School one day, school one day
It followed her to school one day
Which was against the rules.

It made the children laugh and play,
Laugh and play, laugh and play,
It made the children laugh and play
To see a lamb at school

And so the teacher turned it out,
Turned it out, turned it out,
And so the teacher turned it out,
But still it lingered near

And waited patiently about,
Patiently about, patiently about,
And waited patiently about
Till Mary did appear

"Why does the lamb love Mary so?"
Love Mary so? Love Mary so?
"Why does the lamb love Mary so?"
The eager children cry

"Why, Mary loves the lamb, you know."
Loves the lamb, you know, loves the lamb, you know
"Why, Mary loves the lamb, you know."
The teacher did reply

Twinkle, Twinkle, Little Star

Twinkle, twinkle, little star,
How I wonder what you are.
Up above the world so high,
Like a diamond in the sky.
Twinkle, twinkle, little star,
How I wonder what you are!

When the blazing sun is gone,
When he nothing shines upon,
Then you show your little light,
Twinkle, twinkle, all the night.
Twinkle, twinkle, little star,
How I wonder what you are!

Then the traveler in the dark
Thanks you for your tiny spark;
He could not see which way to go,

If you did not twinkle so.
Twinkle twinkle little star

Head, Shoulders, Knees & Toes

Head and shoulders, knees and toes, knees
and toes,
Head and shoulders, knees and toes, knees
and toes,
And eyes and ears and mouth and nose,
Head and shoulders, knees and toes, knees
and toes.

Ankles, elbows, feet and seat, feet and seat,
Ankles, elbows, feet and seat, feet and seat,
And hair and hips and chin and cheeks,
Ankles, elbows, feet and seat, feet and seat.

If You're Happy and You Know It

If you're happy and you know it, clap your hands (clap clap)
If you're happy and you know it, clap your hands (clap clap)
If you're happy and you know it, then your face will surely show it
If you're happy and you know it, clap your hands. (clap clap)

If you're happy and you know it, stomp your feet (stomp stomp)
If you're happy and you know it, stomp your feet (stomp stomp)
If you're happy and you know it, then your face will surely show it
If you're happy and you know it, stomp your feet. (stomp stomp)

If you're happy and you know it, shout "Hurray!" (hoo-ray!)
If you're happy and you know it, shout "Hurray!" (hoo-ray!)
If you're happy and you know it, then your face will surely show it
If you're happy and you know it, shout "Hurray!" (hoo-ray!)

If you're happy and you know it, do all three (clap-clap, stomp-stomp, hoo-ray!)
If you're happy and you know it, do all three (clap-clap, stomp-stomp, hoo-ray!)
If you're happy and you know it, then your face will surely show it
If you're happy and you know it, do all three. (clap-clap, stomp-stomp, hoo-ray!)

Row, Row, Row Your Boat

Row, row, row your boat
Gently down the stream.
Merrily, merrily, merrily, merrily,
Life is but a dream.

The Farmer In the Dell

The farmer in the dell
The farmer in the dell
Hi-ho, The derry-o
The farmer in the dell

The farmer takes a wife
The farmer takes a wife
Hi-ho, The derry-o
The farmer takes a wife

The wife takes a child
The wife takes a child
Hi-ho, The derry-o
The wife takes a child

The child takes a nurse
The child takes a nurse
Hi-ho, The derry-o
The child takes a nurse

The nurse takes a cow
The nurse takes a cow
Hi-ho, The derry-o
The nurse takes a cow

The cow takes a dog
The cow takes a dog
Hi-ho, The derry-o
The cow takes a dog

The dog takes a cat
The dog takes a cat
Hi-ho, The derry-o
The dog takes a cat

The cat takes a rat
The cat takes a rat
Hi-ho, The derry-o
The cat takes a rat

The rat takes the cheese
The rat takes the cheese
Hi-ho, The derry-o
The rat takes the cheese

The cheese stands alone
The cheese stands alone
Hi-ho, The derry-o
The cheese stands alone

Teacher Resources – Pre-Visit #3E

1st – 4th Grade

Pre-Visit #4A

5th – 8th Grade

What Causes Sound?

1. Materials: Tuning fork, plastic cup filled with water, paper towels

Gently touch the surface of the water with the prong tips of a ringing tuning fork.

What happens? Observation:

2. Materials: Rubber band, plastic cup

Wrap the rubber band around the cup lengthwise. Pluck the band like a guitar string. What happens? Observation:

Pluck the rubber band again and then touch it lightly with your fingertip. What do you feel? What do you hear when you touch it? Observation:

3. Materials: Ruler, desk

Hold the ruler with one end sticking out about 3 inches beyond the edge of the desk. Have a classmate gently snap the free end of the ruler. What do you see and hear? Observation:

Snap the ruler again and then touch the free edge with your fingertip. What do you feel? What do you hear when you touch it? Observation:

4. Materials: Self

Put your fingertips gently on the front of your throat while you hum or say “ahhh.” What do you feel? Observation:

5. **Conclusion**

Everything you heard was caused by:

Teacher Resources – Post-Visit #3
1st – 4th Grade

Onomatopoeia Poems

Oh
CRASH!
my
BASH!
it's
BANG!
the
ZANG!
fourth
WHOOSH!
of
July
WHEW!

The Fourth By Shel Silverstein

Chew Chew Chew
Chip Chop Crunch
Mish Mash Munch
Breakfast is over.
It's time for lunch!

I'm Hungry by D. Nowicki

Jingle, jangle, bing, bang, bong
Rattle, thump, tap,
Play along.
What can you find to make noise?
Look in the kitchen, or your room for some toys.
Invent a sound like crickle, zoop, or zing.
It's not hard to make things sing!

The New Sound of Music by D. Nowicki

Teacher Resources – Post-Visit #4

1st – 4th Grade

Jill Almost Misses The Bus **1997, Boston Museum of Science**

Jill was having a wonderful dream about riding a horse. The horse was running along a road, **(1. two inverted cups drumming on desk)** and Jill was enjoying feeling the wind rushing through her hair. **(2. voices whooshing)**.

Suddenly there was a loud ringing noise, **(3. alarm clock ringing)** and the horse and road vanished. Jill opened her eyes. She was in bed and the ringing sound was her noisy old alarm clock. Jill rubbed her eyes and climbed out of bed.

She quickly put on her clothes and went to get her breakfast **(4. walking footsteps)** (5. door opening and closing) (6. walking footsteps).

She grabbed a bottle of orange juice out the refrigerator, **(7. bottles clinking together)** and poured herself a glass **(8. water pouring into a glass)**.

Then she sat down at the breakfast table **(9. chair moving)** to eat her cereal **(10. spoon moving in cup)**.

While Jill was eating her cereal, her mother started to make Jill's lunch. First she opened a jar of peanut butter **(11. jar opening, put lid down)** and spread some on toast **(12. plastic knife scraping dry sponge)**.

Then she put a second piece of toast on top to make a sandwich. Jill's favorite kind of sandwich was peanut butter on toast. Next she wrapped the sandwich in waxed paper **(13. rattling wax paper)**.

"Would you rather have an apple or an orange?" asked Jill's mother.

"Oh, I guess an orange," said Jill. Her mother put the sandwich and orange in a lunch bag, **(14. opening and closing paper bag)** and handed the bag to Jill. She also dropped twenty-five cents on the table for milk **(15. drop quarter on desk)**.

"Thanks Mom!" said Jill.

Jill got up from the table **(16. chair moving)** and went into the bathroom **(17. walking footsteps)** to brush her teeth. **(18. scrub brush scrubbing cardboard)**.

When she was all finished, she walked back to the kitchen **(19. walking footsteps)** and picked up her lunch and milk money. She was about to leave the house when her mother called after her: ""Don't forget your homework, Jill. It's still spread out all over the dining room table!"

"Wow" thought Jill, running to the dining room. **(20. running footsteps)** I almost did forget and my project is due today too!" **(21. rustle papers)**

She gathered up all of her papers and tucked them inside her folder to keep them neat. Then she put them inside her backpack and zipped it up. **(22. close zipper)** **(23. honk bicycle horn)**

"Oh no!" cried Jill, "the bus is here!" **(24. running footsteps)** **(25. door opening and closing)** and she ran to catch it.

THE END

Teacher Resources – Post-Visit #6

1st – 4th Grade

_____ (date)

Dear Parents,

Your child has been participating in Kidspace at the Massachusetts Museum of Contemporary Art (Mass MoCA). This semester's exhibition is called *The New Sound of Music* and special projects have been designed to help your children explore sound and musical instruments.

As part of our activities, each student will be inventing a musical instrument made from recycled materials. Please help by having your children bring in an assortment of objects that may be of use for their invented instruments, as well as materials that you think would be useful to other students.

The following list contains some items that we are looking for. These items should be those that don't need to be returned to you. You may also think of something useful that is not on the list.

- plastic trays
- film cans
- pieces of rubber hose
- sea shells
- metal trays
- pots and pans
- pot covers
- metal objects to jangle such as old keys, spoons
- clean metal cans with no sharp edges
- plastic tubs with or without covers
- wooden spoons
- chop sticks
- fishing line
- small pieces of different types of wood
- dried rice, beans, seeds of different kinds
- different sizes of wire
- metal or plastic funnels
- clean milk cartons and plastic jugs

Thank you for your help.

Teacher's Name

Teacher Resources – Post-Visit #6

1st – 4th Grade

Steps in Making a Musical Instrument

1. Get ideas for your instrument
 - a. Books at the library
 - b. The Virtual Museum of Music Inventions at:
<http://www.musicinventions.org>
2. Use five different recycled materials. Bring them to school in a shopping bag with your name on it, if you're building your instrument in class. Some suggestions for materials are: cardboard, plastic or metal tubes, wooden boxes, scrap wood, old fishing line, old pot covers, plastic cups, metal cans, rice, beans, etc.
3. List the websites, books, and/or other resources you used. List the materials you will need. Write the steps, in order, that you will follow to build your instrument. Draw and label the main parts of your instrument that you plan to make.
4. Create your instrument. Decorate it to make it look attractive. Invent a name for your instrument.
5. Play your instrument. Can you improve the sound? Experiment. What did you change?
6. Write how you made your instrument and how it produces sound. Describe how you can change the pitch (how high or low the sound is) and/or the volume (how loud or soft the sound is) of the sound.
7. Demonstrate your instrument to the class, explaining how it was made, how it produces sound, and how the pitch and/or volume of the sound can be changed.

Teacher Resources – Post-Visit #6

1st – 4th Grade

Essay Assignment Guidelines

Write About Your Invented Musical Instrument

Paragraph One – Introduction

Write an introduction to your musical instrument. Include the following:

- The name of your instrument.
- How you got the idea for making it.
- The instrument family to which it belongs (string, percussion, wind).
- Describe what your instrument looks like and what it sounds like.

Paragraph Two – Materials

- Write about the materials you used to make your instrument.
- Explain where you found the materials.
- Describe the materials you used to make your instrument.

Paragraph Three – Procedure

- Write about how you made your instrument.
- Explain how other adults helped you.
- Describe the parts of the instrument that you made yourself.
- Write about any problems you had in making the instrument and how you solved them.

Paragraph Four – Playing Your Instrument

- Explain how you play your instrument.
- Explain how you can change the volume or pitch of the instrument.
- If you can play your instrument more than one way, describe it and tell about how the sound changes.

Paragraph Five – Conclusion

- Write about your feelings about this project.
- Write about the things you liked about making a musical instrument.
- Write about what you learned while you were making your own instrument.

Essay Assignment Worksheet

Write About Your Invented Musical Instrument

Directions:

1. Think about your musical instrument.
2. Fill in the blanks on this page to complete each sentence.
3. Have someone check your work. This is the rough draft of your essay.
4. Copy the sentences on another sheet of paper.
5. Copy **all** of the sentences. That means you will copy the type-written part **and** your own words.
6. Remember to indent each paragraph.
7. Get help editing your work.
8. Type your final copy or write it neatly.

Paragraph One

My instrument is called _____.

I got the idea for making my instrument from _____
_____.

My instrument belongs to the _____ family.

One interesting thing about my instrument is _____
_____.

_____.

Paragraph Two

To make my instrument, I used the following materials:

_____, _____,
_____,
_____, and
_____.

I found my materials

_____.

Paragraph Three

I made my instrument by

_____.

One person who helped me with my instrument was _____.

The biggest problem I had when making my instrument
was _____

_____.

Paragraph Four

I thought making my musical instrument was

because _____

_____.

I learned

_____.

Teacher Resources – Post-Visit #6

1st – 4th Grade

Musical Instruments Rubric

CATEGORY	ADVANCED 4pts	PROFICIENT 3pts	DEVELOPING 2 pts	BEGINNING 1pt
Information Gathering	Information was taken from a variety of sources.	Information was taken from two sources.	Information was taken from one source.	No evidence of information from any sources.
Written Plan	Materials and steps were written in a way that could be followed by anyone without additional explanations. No teacher help was needed to accomplish this task.	Materials and steps were written in a way that could be followed by anyone without additional explanations. Some teacher help was needed to accomplish this task.	Materials and steps were written, but had 1- 2 gaps that required explanation even after teacher feedback was given.	Materials list and steps were incomplete even after teacher feedback.
Drawing	Made an accurate easy-to-read drawing with labels that included the main parts of the instrument. The drawing was complete before construction.	Made an accurate drawing with labels that included the main parts of the instrument. The drawing was complete before construction.	Made an accurate drawing with labels that included the main parts of the instrument. The drawing was completed during construction.	No drawing was made or it was very incomplete.
Construction Materials	At least 5 different recycled materials were chosen and creatively changed to make the instrument.	At least 4 different recycled materials were chosen and creatively changed to make the instrument.	Two or three recycled materials were chosen and changed to make the instrument.	Only one recycled object was used to make a musical instrument.

	ADVANCED	PROFICIENT	DEVELOPING	BEGINNING
--	-----------------	-------------------	-------------------	------------------

	4pts	3pts	2 pts	1pt
Quality of Construction	The instrument shows much work went into its construction. It is sturdy, neat, and will stand up to repeated playing over a period of time.	The instrument shows a fair amount of work went into its construction. It is reasonably sturdy and will stand up to being played more than once.	The instrument is neatly constructed, but is fragile and will probably not stand up to being played more than once.	Pieces are missing or falling off. Seems "slapped together" in a hurry.
Quality of Sound	Instrument has a wide range of pitch (high & low) and/or volume (loud & soft) that is clearly heard.	Instrument has some range of pitch and/or volume that is clearly heard.	Instrument does not have any changes in pitches or volume. The sound is weak and cannot be heard clearly.	Instrument does not make any new sounds.
Testing/ Changes	There is clear evidence of testing and changes based on data and musical knowledge of pitch and volume.	There is evidence of testing and changes made.	Some evidence of testing.	There is no evidence of testing or changes made to improve the quality of the instrument.
Time & Effort	Class time was used wisely. Much time and effort went into planning, designing, and constructing. The student clearly worked at home as well as at school.	Class time was used wisely. Time and effort went into planning, designing, and constructing. Student could have put in more time and effort at home.	Class time was not always used wisely, but student clearly did some additional work at home.	Class time was not used wisely and the student put in no additional effort.

Teacher Resources – Post-Visit #6
1st – 4th Grade

Musical Instruments

Student Name _____

Written Report (Possible 40 Points)

- 1. How was the instrument made? _____
- 2. How is sound produced? _____
- 3. How can you change the sound? _____
- 4. Neatness _____

TOTAL _____

Oral Presentation (Possible 20 Points)

- 1. How was the instrument made? _____
- 2. How is sound produced? _____
- 3. How can you change the sound? _____
- 4. Demeanor of student _____

TOTAL _____

Musical Instrument (Possible 40 Points)

- 1. Appearance/Neatness _____
- 2. Creative name for instrument _____
- 3. Effort taken to achieve sound quality _____

TOTAL _____

GRAND TOTAL _____

GRADE _____

Teacher Resources – Pre-Visit #1
5th – 8th Grade

The New Sound of Music
Human Treasure Hunt

Find someone who. . .

Plays a musical instrument	Has played the game Marco Polo in a swimming pool	Can name three musical instruments
Can give you an example of onomatopoeia	Has visited Kidspage	Can tell you two parts to the ear
Likes to create or invent new things	Has never taken musical instrument lessons	Has watched movie "The Sound of Music"
Has attended a live concert	Has a friend or knows someone who plays an instrument	Can give you examples of recycled household waste to create art

Teacher Resources – Post-Visit #1

5th – 8th Grade

Onomatopoeia Examples

Splash	Wheeze	Clop
Knock	Squish	Zip
Roar	Woof	Slurp
Whinnying	Clap	Tick
Bang	Tock	Drip
Hiss	Scratch	Clippity-clop
Boo	Cock-a-doodle-doo	Flip-flop
Buzz	Fizz	Cuckoo
Pow	Ding	Dong
Bong	Boom	Beep
Cluck	Rip	Boo-hoo
Thump	Choo-choo	Bow-wow
Pop	Argh	Ouch
Splash	Belch	Blab
Wow	Blare	Bleat
Kerplunk	Thud	Screech
Gush	Bark	Abuzz
Tinkle	Bleep	Bray
Smash	Crack	Creak
Growl	Croak	Crow
Crunch	Murmur	Pit-pat
Click	Sob	Spatter
Sizzle	Splutter	Squeak
Clatter	Varoom	Clickety-clack
Clang	Yippity-yap	Cackle
Rattle	Oompah	Jingle
Baa	Jangle	Hoot
Babble	Chugg	Garble
Clip	Mumble	Gobble
Clunk	Snort	Plunk
Ring	Scrunch	Tramp
Swish	Toot	Whirl
Swoosh	Whoosh	Zap
Clank	Zing	Yip
Whine	Chirp	Gong

Teacher Resources – Post-Visit #1 5th – 8th Grade

Onomatopoeia Poems

The rusty spigot
Sputters,
Utters
A splutter,
Spatters a smattering of drops,
Gashes wider;
Slash,
Scatters,
Spurts,
Finally stops sputtering
And splash!
Gushes rushes splashes
Clear water dashes
By Eve Merriam

The moan of doves in immemorial elms,
And murmuring of innumerable bees.
--*Come Down, O Maid*, Long Alfred Tennyson

Here are cool mosses deep,
And through the moss the ivies creep,
And in the stream the long-leaved flowers weep,
And from the craggy ledge the poppy hangs in sleep.
--*Song of the Lotus-Eaters*, Long Alfred Tennyson

Bow-wow, says the dog,
Mew, mew, says the cat,
Grunt, grunt, goes the hog,
And squeak goes the rat.
Tu, whu, says the owl,
Quack, quack, says the duck,
And what the cuckoo says you know.
--Mother Goose

The Bells by Edgar Allan Poe

I

Hear the sledges with the bells –
Silver bells!
What a world of merriment their melody foretells!
How they tinkle, tinkle, tinkle, in the icy air of night!
While the stars that over sprinkle
All the heavens, seem to twinkle
With a crystalline delight;
Keeping time, time, time,
In a sort of Runic rhyme,
To the tintinnabulation that so musically wells
From the bells, bells, bells, bells,
Bells, bells, bells –
From the jingling and the tinkling of the bells.

II

Hear the mellow wedding bells,
Golden bells!
What a world of happiness their harmony foretells!
Through the balmy air of night
How they ring out their delight!
From the molten-golden notes,
And an in tune,
What a liquid ditty floats
To the turtle-dove that listens, while she gloats
On the moon!
Oh, from out the sounding cells,
What a gush of euphony voluminously wells!
How it swells!
How it dwells
On the Future! How it tells
Of the rapture that impels
To the swinging and the ringing
Of the bells, bells, bells,
Of the bells, bells, bells, bells,
Bells, bells, bells –
To the rhyming and the chiming of the bells!

Teacher Resources – Post-Visit #3

5th - 8th Grade

Lyrics to Paul Simon's *Sounds of Silence*

Hello darkness my old friend
I've come to talk with you again
Because a vision softly creeping
Left its seeds while I was sleeping
And the vision that was planted in my brain
Still remains
Within the sound of silence.

In restless dreams I walked along
Narrow streets of cobblestone
'Neath the halo of a street lamp
I turned my collar to the cold and damp
When my eyes were stabbed by the flash of a neon light
That split the night
And touched the sound of silence.

And in the naked light I saw
Ten thousand people maybe more
People talking without speaking
People hearing without listening
People writing songs that voices never share
And no one dare
Disturb the sound of silence

"Fools" said I "You do not know
Silence like a cancer grow
Hear my words that I might teach you
Take my arms that I might reach you"
By my words like silent raindrops fell
And echoed
In the wells of silence.

And the people bowed and prayed
To the neon god they made
And the sign flashed out its warning
In the words that it was forming
And the sign said "The words of the prophets are written on subway walls
And tenement halls
And whisper'd in the sounds of silence."

THE NEW SOUND OF MUSIC

MASSACHUSETTS LEARNING STANDARDS

Arts

Students will:

- Use a variety of materials and media and understand how to use them to produce different visual effects (MA Standard 1.1, Visual Arts).
- Expand their repertoire of 2D and 3D art processes, techniques, and materials with a focus on the range of effects possible within each medium. (MA Standard 1.5, Visual Arts)
- Demonstrate the ability to articulate criteria for artistic work, describe personal style, assess and reflect on work orally and in writing, and to revise work based on criteria developed in the classroom (MA Standard 4.6, Visual Arts).
- When viewing or listening to examples of visual arts, architecture, music, dance, storytelling, and theatre, ask and answer questions such as, *“What is the artist trying to say?” “Who made this, and why?” “How does this work make me feel?”* (MA Standard 6.1, Visual Arts)
- Investigate how artists create their work (MA Standard 7.1, Visual Arts)
- Describe and analyze how performing and visual artists use and have used materials, inventions, and technologies in the work. (MA Standard 9, Visual Arts)
- Apply their knowledge of the arts to the study of the English language arts, history and social science, and science and technology (MA Standard 10, Visual Arts).
- Sing alone and with others, to a varied repertoire of music (MA Standard 1, Music).

- Play instruments, alone and with others, to perform a varied repertoire of music (MA Standard 3, Music).
- Improvise, compose, and arrange music (MA Standard 4, Music)
- Describe and analyze their own music and the music of others using appropriate music vocabulary. When appropriate, students will connect their analysis to interpretation and evaluation (MA Standard 5, Music)

English Language Arts

Students will:

- Pose questions [about works of art and literature], listen to the ideas of others, and contribute their own information or ideas in group discussions and interviews in order to acquire new knowledge (derived from MA Standard 2).
- Understand and acquire new vocabulary and use it correctly in reading and writing (MA Standard 4).
- Identify and analyze sensory details and figurative language (MA Standard 8.19, Grades 5-8)
- Identify the basic facts and essential ideas in what they have read, heard, or viewed (MA Standard 9).
- Identify, analyze, and apply knowledge of the theme, structure, and elements of poetry and provide evidence from the text to support their understanding (MA Standard 14)
- Write or dictate short poems (MA Standard 19.6, Grades 1-2)

Math

Students will:

- Identify, reproduce, describe, extend, and create color, rhythmic, shape, number, and letter repeating patterns with simple attributes (MA Standard K.P.3., Math, Pre-K and Kindergarten)

Science/Technology

Students will:

- Sort objects by observable properties (MA Standard 1, Physical Science, Pre-K-2 Grade)
- Identify the basic forms of energy and recognize that sound energy has the ability to create change (MA Standard 4, Physical Science, Grades 3-5).
- Recognize that sound is produced by vibrating objects and requires a medium through which to travel. Relate the rate of vibration to the pitch of sound (MA Standard 11, Physical Science, Grades 3-5).
- Identify and describe characteristics of natural materials and human-made materials (MA Standard Strand 1 #1, Technology & Engineering, Pre-K-2 Grade).
- Identify and explain the steps of the engineering design process (MA Standard Strand 2 #1, Technology & Engineering, Grades 6-8).
- Demonstrate methods of representing solutions to a design problem (MA Standard Strand 2 #2, Technology & Engineering, Grades 6-8).

THE NEW SOUND OF MUSIC VERMONT LEARNING STANDARDS

Arts, Language, and Literature

Students will:

- Form aesthetic judgment using appropriate vocabulary and background knowledge to critique their own work and the work of others, and to support their perception of work in the arts, language, and literature (VT Standard 5.4).
- Demonstrate knowledge of the artistic process (VT Standards 5.22 – 5.26)
- Use the elements and principals of two- and three-dimensional design in the visual arts, including line, color, shape, and texture, in creating, viewing, and critiquing (VT Standard 5.29).
- Use the elements of vocal and instrumental music, including rhythm, pitch, timbre, and articulation (VT Standard 5.31).
- Students translate an idea into music notation or sound (VT Standard 5.32).

Communication

Students will:

- Listen actively and respond to communications (VT Standard 1.13).
- Critique what they have heard (VT Standard 1.14).
- Use verbal and nonverbal skills to express themselves effectively (VT Standard 1.15).
- Use a variety of forms, such as dance, music, theatre, and visual arts to create projects that are appropriate in terms of skill development, reflection and critique, making connections, and approach to work (VT Standard 1.16).
- Interpret and communicate using mathematical, scientific, and technological notation and representation (VT Standard 1.17).

- In writing poetry, use words for their sounds and texture, or as well as their meaning (VT Standard 1.23b).

Reasoning and Problem Solving

Students will:

- Ask a variety of questions (VT Standard 2.1).
- Use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge (VT Standard 2.2).
- Apply prior knowledge, curiosity, imagination, and creativity to solve problems (VT Standards 2.6).
- Respond to new information by reflecting on experience and reconsidering their opinions and source of information (VT Standard 2.7).

Science, Mathematics, and Technology

Students will:

- Extend patterns by identifying a rule that generates the pattern (VT Standard 7.8a).
- Sort objects and materials according to observations of similarities and differences of properties (VT Standard 7.12a).
- Identify and describe several common forms of energy and provide examples of sources, as well as some characteristics of the transmission (VT Standard 7.12e).
- Use technological/engineering processes to design solutions to problems (VT Standard 7.19).

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