

## EDUCATOR GUIDE

Story Theme: Playing with Technology  
Subject: Walter Kitundu  
Discipline: Music

SECTION I - OVERVIEW .....	2
EPISODE THEME	
SUBJECT	
CURRICULUM CONNECTIONS	
OBJECTIVE	
STORY SYNOPSIS	
INSTRUCTIONAL STRATEGIES	
INSTRUCTIONAL OBJECTIVES	
EQUIPMENT NEEDED	
MATERIALS NEEDED	
INTELLIGENCES ADDRESSED	
SECTION II – CONTENT/CONTEXT .....	3
CONTENT OVERVIEW	
THE BIG PICTURE	
RESOURCES – TEXTS	
RESOURCES – WEB SITES	
VIDEO RESOURCES	
BAY AREA FIELD TRIPS	
SECTION III – VOCABULARY .....	6
SECTION IV – ENGAGING WITH SPARK .....	7



Still image from SPARK story, 2006.

## SECTION I - OVERVIEW

### EPISODE THEME

Playing with Technology

### SUBJECT

Walter Kitundu

### GRADE RANGES

K-12 & Post-secondary

### CURRICULUM CONNECTIONS

Visual Arts & Language Arts

### OBJECTIVE

To understand the development of Walter Kitundu's art and music and its relationship to musical history. To develop written, listening and speaking skills through listening to and talking about contemporary music.

### STORY SYNOPSIS

Since the late 1990s, sound artist Walter Kitundu has been building his own musical instruments, all of which are built around the central element of the phonographic turntable. Spark takes a tour of Kitundu's impressive output as the artist gears up for a solo show at San Francisco's Luggage Store Gallery.

### INSTRUCTIONAL STRATEGIES

Group oral discussion, review and analysis, including peer review and aesthetic valuing as a group.

Teacher-guided instruction, including demonstration and guidance.

Hands-on individual projects in which students work independently.

Hands-on group projects in which students assist and support one another.

Critical reflection on personal expressions and how they are seen and received by others.

### INSTRUCTIONAL OBJECTIVES

- To introduce students to instrument invention through the art of Walter Kitundu
- To provide context for the understanding of the phonographic turntable and other instruments
- To inspire students to listen critically to experimental instruments and contemporary musical compositions

### EQUIPMENT NEEDED

- SPARK story about Walter Kitundu on DVD or VHS and related equipment, or a computer with Internet access, navigation software, video projector, speakers and a sound card.
- CD player or computer audio program

### MATERIALS NEEDED

- Access to libraries with up-to-date collections of periodicals, books, and research papers
- Pencils, pens, and paper

### INTELLIGENCES ADDRESSED

Interpersonal - awareness of others' feelings, emotions, goals, motivations

Intrapersonal - awareness of one's own feelings, emotions, goals, motivations

Spatial - ability to manipulate and create mental images in order to solve problems

Logical-Mathematical - ability to detect patterns, reason deductively, think logically



See more information on  
[Multiple Intelligences](http://www.kqed.org/spark/education) at  
[www.kqed.org/spark/education](http://www.kqed.org/spark/education).

## SECTION II – CONTENT/CONTENT

### CONTENT OVERVIEW

Since the late 1990s, sound artist Walter Kitundu has been creating his own musical instruments, all of which are built around one central element -- the phonographic turntable. Kitundu disassembles and reconfigures his turntables to integrate elements from traditional instruments, alternative and unstable power sources, and other technologies, including effect pedals and MIDI equipment. Spark takes a tour of Kitundu's impressive output as the artist gears up for a solo show at San Francisco's Luggage Store Gallery. Entitled "LP," the show features Kitundu's handmade instruments, alongside diagrams and drawings of ideas about the turntable's past, present and future as a musical instrument.

Kitundu has not received formal musical training. He was first introduced to making music by Alton Heraldon, a Chicago-based hip-hop deejay and turntablist. Kitundu began playing the turntable as a percussion instrument and found the stylus and cartridge to be tremendously sensitive in picking up and amplifying sound. He began work on a series of stylophones, instruments that combined styli as resonators for single strings that could be struck or plucked.

In 2001, Kitundu extended the technology of Stylophones to produce his first phonoharp, which combines multiple strings with a turntable set into a beautifully crafted resonant wooden box. As does the stylophone, the phonoharp receives and amplifies all the sound through the turntable stylus and cartridge.

Kitundu has also developed what he calls "elemental turntables," record players that are powered by the elements of water, fire or air. Each of these elaborate machines combines a turntable with an elemental power source, which then determines how fast or how consistently a record placed on the turntable will be played. In 2005, Kitundu built an ocean-powered turntable and demonstrated the piece at

the Marin Headlands Center for the Arts. Kitundu's machine featured an accordion and melodica that were powered by the ocean's waves, alongside an old 78-rpm record player that was driven by the ocean breeze.

Born in Dar es Salaam, Tanzania, Walter Kitundu has an ongoing residency at the Exploratorium Museum of Science in San Francisco. He has been an artist in residence at Skriduklaustur (Iceland), Eagle Rock School (Colorado), the Science Museum of Minnesota and the Singapore Science Centre. Currently, he is developing a geologic sound casting project for volcanically active regions.

### THE BIG PICTURE

The first phonograph is credited to Thomas Edison, who patented his invention in 1878. Edison's phonograph bore some similarities to later record players, with the central difference being that sound was reproduced from cylinders etched with a spiral groove rather than discs. Though Edison's plans show that he also looked into disc records, he preferred the cylinders since they had the advantage of turning at a constant linear velocity, while the movement of the stylus through the groove of a disc record constantly speeds up as the needle moves towards the center of the disc. Disc records were later favored since they were more conducive to mass production, as molds of the grooves could be pressed into soft wax (later shellac, then PVC), and could be stored more efficiently. Eventually, records came in three speeds: 78, 45 and 33 1/3 revolutions per minute (rpm).

Though the phonographic turntable was invented as a means of reproducing sound recordings, since the 1940s and 50's it has taken on a new role, as a musical instrument in itself. Experimental composers like Edgard Varese, John Cage, and

Pierre Schaeffer began using turntables in their compositions and sound sculptures. In some sense the turntable provides a provocative demonstration of the shift from an industrial to a post-industrial or information-based world, wherein means of production are supplanted by means of reproduction. A visual analogue to this transformation may be found in Andy Warhol's work, which replaces painting (production) with lithography (reproduction) as is demonstrated in his *Marilyn Diptych* of 1962. As the image of Marilyn Monroe is repeated it begins to deteriorate which becomes a visual motif within the piece.



Andy Warhol, *Marilyn Diptych*, 1962

<http://webed.vw.cc.va.us/vwbaile/Media/marilyn.jpg>

A similar claim could be made for the use of the turntable in the creation of new music, primarily since the emergence of hip hop in the 1970s, as the scratch becomes the signature mark of the genre. This is even truer of turntablism, a sub-category of hip hop, wherein attention centers around the performer's improvised manipulation of the turntable. Turntablists have three major techniques for working the turntables: "scratching" the record back and forth; adjusting the pitch of records, known as "beat matching"; and moving the cross-fader on the mixer between two identical records, sometimes called "beat juggling." Turntablists are also constantly looking for new ways to combine and build on these techniques to create new sounds and styles.

Though it is hard to pinpoint the roots of each of these techniques, the invention of scratching is often attributed to DJ Grand Wizard Theodore, an early hip hop deejay who apparently accidentally discovered the technique when he put his hand on

the record he was playing to silence it while his mother was calling him. The technique was soon picked up by other early hip hop artists including Grandmaster Flash, DJ Kool Herc, Afrika Bambaataa, and DJ Red Alert. In the 1990s a new breed of turntablists emerged, including DJ Shadow, DJ Spooky, Mix Master Mike, Cut Chemist, and DJ Q-bert.

## SECTION III – RESOURCES

### TEXTS

Banek, Reinhold, et al. *Sound Designs: A Handbook of Musical Instrument Building*. Ten Speed Press, 1995.

Benade, Arthur H. *Fundamentals of Musical Acoustics*. Dover Publications, 1990.

Brewster, Bill and Frank Broughton. *Last Night a DJ Saved My Life: The History of the Disc Jockey*. Grove Press, 2000.

Broughton, Frank and Bill Brewster. *How to DJ Right: The Art and Science of Playing Records*. Grove Press, 2003.

Hopkin, Bart. *Musical Instrument Design: Practical Information for Instrument Making*. See Sharp Press, 1996.

Katz, Mark. *Capturing Sound: How Technology has Changed Music*. University of California Press, 2004.

Millard, Andre. *America on Record: A History of Recorded Sound*. Cambridge University Press, 1995.

Reighley, Kurt B. *Looking for the Perfect Beat: The Art and Culture of the DJ*. MTV Books, 2000.

### RESOURCES – WEB SITES

<http://www.kitundu.com/>

Walter Kitundu's personal website

<http://en.wikipedia.org/wiki/Phonograph>

An article on the phonographic record player from wikipedia.com

<http://www.mimf.com/>

A forum for musical instrument makers

<http://en.wikipedia.org/wiki/Turntablism>

An article on turntablism from wikipedia.com

<http://www.asisphonics.net/>

A website that feature scratch tutorials and other resources for deejays

### VIDEO RESOURCES

*Scratch*. Dir. by Doug Pray (2001), 92 mins

*DJ Q-bert's Complete DO-IT-YOURSELF, Vol. 1: Scratching*. Dir. by DJ Q-bert (2002), 120 mins.

*DJ Mixing and Remixing*. Dir. By Jam Master Jay (2002).

### BAY AREA FIELD TRIPS

Luggage Store Gallery

1007 Market Street

San Francisco, CA 94103

(415)255.5971

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

Lark in the Morning

2801 Leavenworth Street at Jefferson

San Francisco, CA

(415) 922 4277

<http://larkininthemorning.com/>

The Exploratorium

3601 Lyon Street

San Francisco, CA

(415) 561-0362

<http://www.exploratorium.edu/>

## SECTION III – VOCABULARY

### DISCIPLINE-BASED VOCABULARY AND WORDS AND CONCEPTS IN THE SPARK STORY

#### **78 Player**

A record player that plays records that spin at 78 revolutions per minute (RPMs).

#### **Amplifier**

A natural or artificial device intended to make a signal stronger or louder.

#### **Anemometer**

An instrument for measuring wind force and velocity.

#### **Camshaft**

An engine shaft fitted with a cam, which is a curved wheel mounted on a rotating shaft, used to produce variable or reciprocating motion in another engaged or contacted part.

#### **Delay Pedal**

When used in combination with an instrument, it produces an audio effect which records an input signal to an audio storage medium, and then plays it back after a period of time. The delayed signal may either be played back multiple times, or played back into the recording again, to create the sound of a repeating, decaying echo.

#### **Elemental**

Of, relating to, or being an element (such as water, fire, or air).

#### **Generator**

An electrical generator is a device that produces electrical energy from a mechanical energy source.

#### **Kora**

An instrument made from a large calabash cut in half and covered with cow skin as a resonator, and has a notched bridge like a lute or guitar. The sound of a kora is like a harp, though when played in the

traditional style, it bears a closer resemblance to flamenco guitar techniques. The player uses only thumb and index finger of both hands to pluck the strings in polyrhythmic patterns.

#### **Loop**

A sequence of instructions that repeats either a specified number of times or until a particular condition is met.

#### **Melodica**

A free-reed instrument similar to the accordion and harmonica. It has a musical keyboard on top, and is played by blowing air through a mouthpiece that fits into a hole in the side of the instrument. Pressing a key opens a hole, allowing air to flow through a reed.

#### **Nina Simone**

An American singer, songwriter and pianist. She generally is classified as a jazz musician, and her work also has been described as covering the blues, rhythm and blues, classical, and soul.

#### **Phonokora**

Instrument invented by Walter Kitundu, modeled after an African instrument called a koura (see above definition).

#### **Pitch**

In music, pitch is the psychological correlate of the fundamental frequency of a note.

#### **Resonant**

Strong and deep in tone; resounding.

#### **Turntable**

The circular horizontal rotating platform of a record player on which the record is placed.

## SECTION IV – ENGAGING WITH SPARK

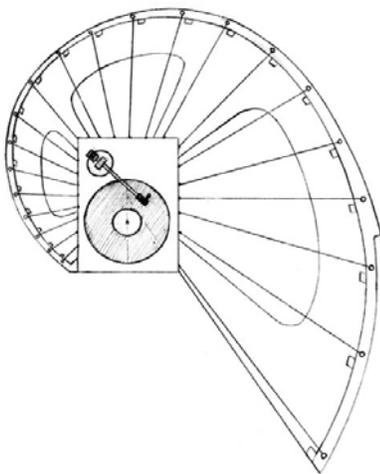
### STANDARDS-BASED ACTIVITIES AND DISCUSSION POINTS

#### Sound Music

Walter Kitundu is a musician and instrument builder who develops instruments that use a turntable as the central component. He has devised a range of instruments, including a whole series of nature-powered turntables as well as art installations based on the turntable. Kitundu recently built a “phonoharp,” which, according to his web site sounds “akin to that of a Japanese koto... and very much like a harp as well.....”

<http://www.kitundu.com/instruments.html>

Play the SPARK segment on Walter Kitundu and pause the DVD after each instrument is featured. Challenge students to take detailed notes on each instrument and then allow them time to write-up their notes. Ask students to explain the workings of each instrument described in the story. Select one of the instruments and freeze the frame on the image. Assign students the task of drawing the instrument, annotating the parts to explain its workings.



*Original phonoharp*

<http://www.kitundu.com/instruments.html>

Click on <http://www.kitundu.com/instruments.html> and play sample extracts from each instrument.

Alternatively, purchase one of Kitundu’s solo recordings and play selections for the class. Encourage students to allow the sounds to evoke images – let their minds wander. Also ask them to determine the origin of the sound without worrying about accuracy.

Prompt students’ thinking with the following questions:

- Do the sounds imitate technology? Machines? Sounds of nature?
- Are they pleasing?
- How does Kitundu use sound as means of artistic expression?
- What are the dramatic effects of these sounds?
- At what point does sound become music?

Conclude this activity by playing a short extract from Spark-featured artist, Loren Chasse: <http://www.kqed.org/arts/programs/spark/profile.jsp?essid=4606> and invite students to compare Walter Kitundu with Loren Chasse. How are these artists similar and how do they differ? Are they attempting to accomplish the same thing?

#### Researching Source Instruments

Split students into four groups and assign each group one of the instruments that inspired Kitundu’s new generation of musical inventions:

- The Indian Sitar
- The Japanese Koto
- The African Kora
- The Indian Sarangi

After learning more about the source instruments, have students identify the modifications Kitundu made to create his pieces. Have students present their findings orally to the class and, if possible, play audio samples of the source instrument, followed by audio samples from Kitundu’s Web site to provide comparisons.

### Discussion and Free-Write

Select some of the listening samples from Kitundu's Web site. Facilitate a discussion on how mood and emotion are established through the music.

Examine how repetition and phasing of musical elements created tension and also set an emotional tone to the music. What are their general reactions? Ask the students how the music makes them feel. Following the discussion, have students spend five minutes doing a free-write about which feelings were evoked when listening to the music. Remind students that, in a free-writing exercise, they need not worry about grammar and punctuation. Encourage them to write non-stop until the five minute time limit is up, jotting down the thoughts that come to mind when listening to the audio samples.

### Found Object Concerto

Have students create their own simple musical instruments using found objects in the classroom. Some examples are: plucking a rubberband stretched over a pencil box, a pen tapping a desk, or a ball of paper that can be crumpled to make a "musical" noise. Using Kitundu's work as inspiration, have one half of the class make a minimalist composition using the sounds of the found objects. As a group, create a simple rhythm that will be continuously repeated, or looped, using these "instruments". Have one student start the composition by playing a rhythm and then "looping it" by repeating the same musical phrase over and over. Silently point to other students to cue them to join in with their own looped part of the sound collage. Once all members of the group have joined in, have students play a rhythmic cycle. Keep going for as long as the students are able to keep it together. Ask half of the class to listen to the composition, observe, and take stock of their feelings, emotions, and observations. Change groups so that everyone gets a chance to play and listen.

### RELATED STANDARDS – MUSIC

Grade 8 – Historical and Cultural Context  
3.4 Compare and contrast the distinguishing characteristics of musical genres and styles from a variety of cultures.

Grades 9-12, Advanced – Aesthetic Valuing  
4.1 Compare and contrast how a composer's intentions result in a work of music and how that music is used.

### RELATED STANDARDS – MUSIC

Grade 2 – Artistic Perception, Aesthetic Valuing  
1.0 – Listen to, Analyze, and Describe Music  
1.3 Identify ascending/descending melody and even/uneven rhythm patterns in selected pieces of music.  
4.0 Derive Meaning  
4.3 Identify how musical elements communicate ideas or moods

Grade 6 – Aesthetic Valuing  
4.2 Explain how various aesthetic qualities convey images, feeling or emotion  
4.3 Identify aesthetic qualities in a specific musical work

### SPARKLERS:

- Explore the physics of sound. What makes an overtone? Every sound that we hear consists of a fundamental tone and also a number of overtones or harmonics. Examine this phenomenon together as a class.
- What will music be like in 50 years? After viewing Kitundu's Spark segment, what do students think the future of music holds? What was it like 50 years ago, and how has it changed today?

For more information about SPARK and its educational content, including the Visual & Performing Arts Standards, visit the Web site at <http://www.kqed.org/spark/education>.



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