STOMP

SEE WHAT
SEE WHAT

ALL THE NOISE
ALL THE NOISE

IS ABOUT
IS ABOUT

A STUDY GUIDE

from the creators of STOMP...

"People drum their fingers on table tops when they are waiting for something to happen. They tap their feet when they are bored. They walk in rhythm quite naturally when they walk down the street...and jangle keys in their pocket...Yes, everything has a rhythm to it. Everything has music to it!"

- Luke Cresswell and Steve McNicholas

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INTRODUCTION

lthough **STOMP** doesn't have a narrative in the manner of a traditional play, it *does* take the audience on a journey. After the opening sequence, which introduces the audience to the ensemble, one of the performers leads the audience in a very simple clap and response session. As the performance progresses, both the rhythms and the instruments become more complex.

At the end of the evening, the audience and performers collaborate on much more complicated rhythms--rhythms which might not have been possible earlier in the course of the performance. The audience has learned to listen on **STOMP**'s wavelength, finding music and pleasure in what was once noise and confusion.

This new level of sensitivity continues after the house lights have come up and the audience has exited; street noises, the steps of passers-by, and the sounds of cars and busses passing all combine to create and continue the presence of **STOMP** and their rhythm of life.

What is STOMP?

What does the word **STOMP** make you think of? It is very difficult to classify the show STOMP. Do you put it under the heading of theater, dance, music or performance art?

STOMP is performed in theaters, but it is not a play, musical, or opera. It is not theater in the traditional sense of the word. There is no speech, dialogue or plot. However, it does have two characteristics of traditional theater: mime and characterization. Each performer has an individual character which is distinct from the others. These characters are brought out through the mime and dance in the show.

STOMP started out as two "buskers" on the streets of Brighton. Busking is the British term for a street performance where people are encouraged to stop, listen and watch. It is a very old custom, dating back to booth theaters erected at village fairs in the Middle Ages and the Renaissance. The street busker of today also echoes back to the wandering minstrel of the medieval fair. Thus, it seems that STOMP's roots are in theatre, but can it really be called "theater"?

The entire show is highly choreographed, interweaving dance into all of its aspects. In STOMP, there is a symbiotic relationship between dance and music. The music is created within the dance, but the dance itself is dependent on the music for its rhythm and character. STOMP shows a true marriage of movement and music, where both

create and enhance each other.

STOMP, however, cannot be described purely as a "dance," for dance is only one of the three elements which are combined to create the show - **music, theater and dance**.

The marriage of these three elements, means that even though STOMP does not contain the traditional features, it does create an interesting and innovative show. It breaks all customary boundaries of the performing arts by inviting the audience to participate in the show, not only demonstrating that anyone has the ability to STOMP, but also encouraging us to take what we have learned about sound and rhythm and apply it to our own everyday lives.

The ideas behind STOMP- of finding music in noises which we usually try to block out and ignore - are not traditional ideas. Often, when a show defies all customary conceptions of music, dance and theatre or combines and alters the concepts in a new and unusual way, people categorize the piece as "performance art."

Luke Cresswell and Steve McNicholas, the creators of STOMP, reject the idea that the show is performance art. Performance art often has the connotation that it is a performer or a group trying to make a political statement through the piece. STOMP makes no such claim; it is **the exploration of rhythm in everyday things**. To quote Luke, "at the end of the day, STOMP is what it is." There are no hidden meanings, it's just entertainment.

PART ONE

This section of the STOMP Study Guide is recommended for younger students

SOUND AROUND ACTIVITIES

This section contains simple activities on sound that can be done in the classroom. First, here are some **simple definitions:**

Vibration: the back and forth movement of an object.

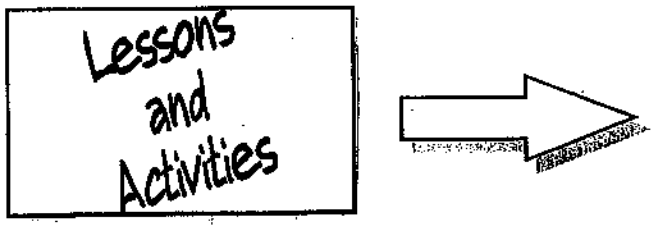
Volume: the loudness or softness of a sound

Amplification: making the sound louder

Pitch: the highness or lowness of a sound

Frequency: the rate of vibration.

(For example, the lowest sound that a person can hear is a frequency of roughly 16 to 20 times per second and the highest sound is at a frequency of about 20,000 times per second, although other animals have different hearing ranges.)



What can you hear?

Lesson: **Sight is the most dominant sense in most humans. When our vision is limited, our other senses can gain dominance and become stronger.**

Directions: Have students sit quietly in the room with their eyes closed. Have them listen for subtle sounds in the classroom and the surrounding area. What can they hear? Discuss why closing your eyes helps you to hear better.

What kinds of sounds are there?

Lesson: **The four basic sounds are: high, low, loud, soft**

Materials: gong
drumstick

Directions: Bang on the gong and listen for all four sounds. Have each child say his/her name high, low, loud, soft. Change the order of the sounds so that the children realize that they can come in different orders or combinations.

Amplifying sounds

Lesson: **Soft sounds can be made louder by bouncing them off of different items. Placing a music box on hard surfaces, such as walls, tables, floors, etc., will make the sound louder. Soft surfaces, such as carpet, absorb sound making it softer.**

Materials: wind up music box
hard and soft surfaces
cardboard box with hole

Directions: Place music box on outside of a cardboard box with a hole cut in it, and the sound is amplified (sounds bounce around inside the box and come out focused through the hole). Ask kids to think of musical instruments that are basically big boxes with holes (Violin, guitar, piano, etc.).

Lesson 4

Are there sounds we can't hear?

Lesson: **Discuss communication in bats, whales, dolphins, etc.**

Materials: dog whistle

Directions: We can actually hear some of the sounds emitted from a dog whistle, but others are too high for us to register. Experiment by blowing different tones into the dog whistle. Some students may be able to hear a higher range than others.

Lesson 5

How sounds are made...

Lesson: Sound makes molecules of air vibrate (wiggle), which causes each air molecule to knock against the next until the sound travels in wave-like ripples like you would see in a pond. These sound waves travel through the air and are collected by the outer ear. It will be helpful at this point to discuss the anatomy of the ear.

Materials: gong
signs
giant model of ear

Directions: Have ten children line up shoulder to shoulder between the gong and the giant ear model. The child nearest the gong has a sign saying SOUND, the child nearest the ear has a sign which says HEAR. The remaining eight children in between have signs saying AIR. When the gong is struck the first child wiggles back and forth, the next child wiggles when he/she feels the first child, and so on down the line. The last child holds up the HEAR sign as they feel the wiggle of the child next to them.

Discuss the concept of the voice box (vocal cord wiggle). Have children make high sounds. They can feel the upper part of their vocal cord wiggles by putting their fingers on their throats. Now have children make low sounds which will wiggle the vocal cords further down in the throat.

How sounds get where they are going

Materials: tuning forks
ping pong balls glued to pieces of string

Directions: Have kids play with tuning forks. They should hold the fork by the "stem" and tap sharply on their shoe. By placing the fork stem on various surfaces in the room, sounds can be amplified or muffled. If the stem of the vibrating fork is placed on elbow and index finger of hand is inserted in ear, the sound can be heard through the BONES! (This explains why our voice on a tape recorder doesn't sound right to us. We can hear our own voices through our bones and ears.)

After a few minutes of playing, hand out ping pong balls on string. By dangling the ball next to the vibrating fork so that it is gently tapped, one can see the "wiggle" of the vibrating fork transmitted to the ping pong ball.
The final activity after class is to

take the children out into the hall and have them lean one ear against a long metal hand railing. Place the music box at one end of the rail and have the children listen. Even the last child at the end of the hall will hear music through the metal rail!

Salt Voiceprints

Lesson: **When you sing a note, the vibrations of your vocal cords cause the surrounding air to vibrate. This excercise is very effective in showing this principle.**

Materials: empty coffee can
elastic band
salt
large balloon

Directions: Cut off the end of the balloon about 2 inches down from the nozzle. Stretch the balloon over the open end of the coffee can and fasten it with an elastic band. Don't be frustrated if it takes a couple of tries. Sprinkle some salt on top of the balloon covered can. Without

actually blowing on the salt, have the students "sing" at the can. Start with low notes and slowly raise the pitch of the sound until the salt starts to bounce around on the balloon. Observe the pattern of the moving salt. You can also have the whole class sing the same song together, while keeping their mouths close to the can.

What happens if they change the pitch? What happens if they change the volume of the sound?

When you sing, the vibrations of your vocal cords cause the surrounding air to vibrate, which, in turn, causes the stretched balloon to vibrate. There are certain notes that will cause the balloon to vibrate more than others. These notes are called the **resonant frequencies** of the balloon.

When the balloon is vibrating, there will be parts of the balloon that vibrate quite strongly and some that will not vibrate at all. These areas are called **nodes.** The salt will tend to collect on the nodes.

Note: Please be aware that this activity can get fairly noisy and slightly messy.

Sound Scavanger Hunt

You can go on a sound scavenger hunt at school or at home. Different students might come up with various answers to each of these questions, and you can encourage discussion about their differences in opinion.

Try to find a different sound for each answer.

1. Find a musical sound.
2. Find the loudest sound you can.
3. Find a sound that makes you feel relaxed and calm and sleepy.
4. Find a sound that makes you feel like moving a lot.
5. Find a sound that makes you feel happy (or sad , scared, excited, etc.).

As a group, you might want to discuss the sounds you found in a quiet place.

Were there any sounds where the group agreed completely? Which ones?

Which question led to the greatest amount of

variety and discussion of answers? Where did you hear the greatest number of different sounds. Where did you hear the least number? Why? Can you come up with any other categories of sound to find?

Why Two Ears?

Lesson: Two ears enable us to more effectively locate the source of a sound. Because human ears are located on the sides of our heads, we can easily distinguish the direction of sounds that come from our right or left. If a sound is coming from your left, it means that your left ear hears the sound slightly sooner than your right ear. If a sound comes from directly in front of you (or from behind you), then the sound hits both ears at the same time and is more difficult to locate.

Materials: One clicker

Directions: Show the clicker to the class and make a few sounds with it so that the students can recognize it. Have

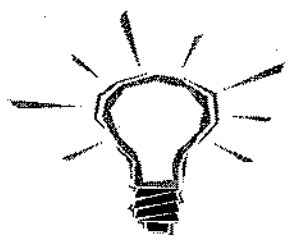
all of the students sit in a circle with one student in the middle (Student A) with his/her eyes closed.

Have the students in the circle pass around the clicker. Signal silently (by tapping them on the head or by pointing) to one student (Student B) when you want him/her to make a sound. That student should click twice.

Student A should point in the direction of the sound. Once Student A has pointed, Student B clicks twice more, giving Student A another chance to find the source of the sound. Have Student A open his/her eyes to determine the actual location of the clicker.

Student B then goes into the center of the circle and Student A takes his/her place in the circle. Continue the activity for as many students as you would like, varying the location of the clicker relative to Student A (sides, back, front).

The students may notice that when the sound is coming from either right or left of Student A, s/he can point to the location of the clicker fairly easily. However, when the sound comes from either directly in front of or directly behind student A, it is more difficult to identify the location.



Owl and Mouse Echolocation Activity

This activity shows the process of echolocation that is used by some nocturnal and underwater predators, such as bats, owls and dolphins. Because the light is very dim when these animals do their hunting, they rely on sounds to find their prey.

Materials: 2 clickers

Directions:

•Have students stand in a circle holding hands. This circle will set the boundaries for the activity.

•Choose two students to stand in the middle of the circle. One student will have the role of the Owl (the predator) and the other will have the role of the Mouse (the prey).

•Put a blindfold on the Owl. Give both the Mouse and the Owl a clicker.

•Start by having the Owl click once. Whenever the Mouse hears the sound, s/he must click back. The Owl tries to determine the location of the Mouse and walks in that direction. The Mouse can also walk away from the Owl to avoid being "caught".

•The Owl clicks again, the mouse clicks in return, and the Owl again moves in the direction of the sound. Sometimes the Owl will bump into the students forming the circle. If this happens, the students should stay quiet and gently tap the Owl away from the edge of the circle.

Continue until the Owl finds or "captures" the Mouse. When the Owl has touched the Mouse, the Mouse should squeak loudly so that the Owl knows that it has caught its prey.

At first give the Owl as long as s/he needs to find the Mouse. After the students get used to the activity, challenge them by giving the Owl only a set amount of "clicks" to find the Mouse. With practice, the Owl should be able to find the Mouse in six or fewer clicks.

When a bat is searching for food, it emits very high pitched sounds that are too high for human ears to hear. This sound echoes off surrounding objects (including moths, insects, and other bat food) and bounces back towards the bat. The bat can distinguish different shapes by the echoes, so it can tell the difference between a leaf or a moth. The bat can them locate the position of its food by the echoes it receives.

Activity TWO

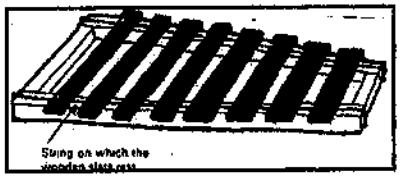
Noise, Sound or Music?

Children seem to delight in making noises. At first almost any noise will do, then come attempts at rhythm and musical notes.

Fortunately there are a number of simple musical instruments which can be made by children using everyday materials.

Sounds are usually caused by something vibrating which in turn causes the air to vibrate. However, sound will travel through substances other than air, and children have rung bells under water and sent messages along pipes. They have also tried to measure the velocity of sound by measuring how long it took the sound, made by the banging of two blocks of wood together, to cross a playing field.

A **xylophone** is made of wooden bars of varying lengths laid across supports, as shown in the figure to the right. ⇨

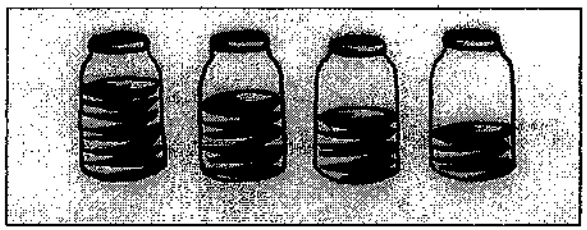


Another possibility is to drive a series of large nails of varying depths into a block of wood. Is it better to lay the block flat, or to stand it on its edge? In carrying out an investigation like this when something or some action needs duplicating or repeating a number of times, it might be best to encourage different children or groups to do the repeats and then compare their findings.

Jam jars or milk bottles containing different amounts of water give different notes when struck.

- Which gives the highest note?
- Which gives the lowest note?
- Is it the glass or the water which gives the note?

Start with an empty jar.



Banging: Let us make a drum

How many ways can children devise to make a drum? The hollow part can be a jar, an old saucepan, a wooden box, a tin: all shapes and sizes can be tried and different sounds produced. But it is the covering material over the open end which may give the most trouble. On a real drum it is usually parchment, which is made from skin stretched tight, and it is this tightness which is important.

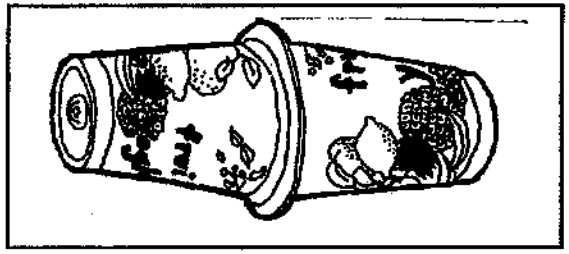
Materials which have been used and might be tried are: thin cotton or nylon cloth, thick wallpaper, plastic film such as polythene wrapping material, rubber sheeting. The cotton, nylon and wallpaper must be dampened and stretched tight, tied in place with string and allowed to dry, then varnished with sealant.

If small seeds (radish, mustard) are sprinkled on the drum, and the drum is then tapped, the vibration of the skin can be seen.

Rattling

The maraca used in jazz, swing and Latin music bands is a rattle made from a dried gourd and containing seeds, beads or shot.

The gourd can be replaced by a squeeze bottle or two yogurt cartons taped together and a variety of rattling material can be tried (big beans, little beans, dried peas, sand, lentils).



Blowing

Basically there are two methods of producing a note by blowing: one is to make air vibrate (e.g. by blowing across the top of a tube or bottle), the second is to make something else vibrate. An example of this is the reed in some wind instruments which can be copied using a drinking straw. Various lengths of straws give different notes, but can you make different notes without altering the length of the straw?

Obtain a number of medicine bottles of the same size. Pour different amounts of water in each bottle and blow across the tops of them. Which bottle

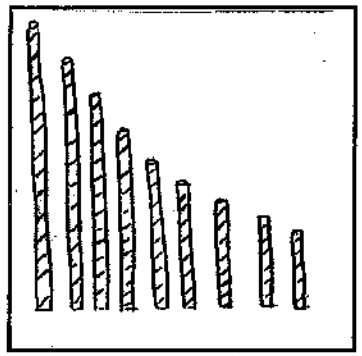
produces the highest note? Which produces the lowest note?

Compare the amounts of water in each bottle. Does the one with the least amount of water give the highest or lowest note?

Compare the results of this investigation with that of jam jars and water- how can the results be explained? (In the case of the jam jars, it is the glass above the water level which vibrates. The larger the amount of glass the lower the note. With the medicine bottles it is the air which vibrates. The more air there is, the lower the note.)

Key Wane

Get a packet of straws and make a point on the end of one. Then blow into the straw. A long straw produces a low note, but if you cut a portion of the straw off a higher note is produced. Try to make a scale. The small straws make high notes and the long straws make low notes.

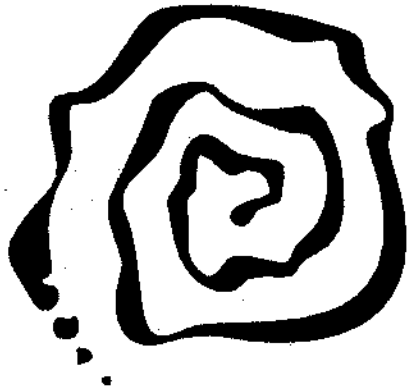


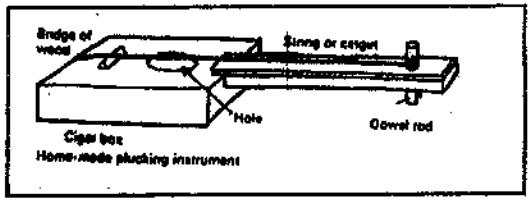
Whistle

Some whistles have a pea in them. Do they work if the pea is removed?

A Humming Top

A humming top is a good way to investigate. What makes it spin? Why does it hum? Can the humming be controlled? How long will the top continue to spin?

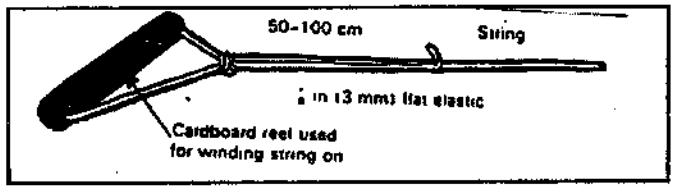




Plucking

A banjo or guitar could be used to discover the change in note when the length and tension of string are varied. A number of home-made stringed instruments can be constructed. Bowing a stringed instrument is another way of inducing the strings to vibrate.

The frequency of a note given by a string is increased as the length of the string is decreased. The frequency increases as the tension increases.



A Bull Roarer

Children may have heard the wind whistling through the telephone wires. This can be imitated by a primitive aboriginal instrument called a ***bull roarer.***

If this is swung around the head faster and faster, a loud humming is produced.

PART TWO

Special RAIN FOREST Section

Squawking Parrot

Since vision tends to be obstructed in the thick, green canopy of the rainforest, many animals must locate each other by using other senses. Some advertise there whereabouts with bright colors while others, such as monkeys and birds, use loud, low frequency sounds to stay in touch over long distances. The following activity allows students to create a flock of squawking parrots.

Materials:
brightly colored plastic cups
string
pieces of sponge
construction paper in bright colors
markers
glue
push pins
scissors

Activity: Using a push pin, poke small hole in center bottom of plastic cup. Widen with point of scissors to accommodate string. Be careful not to crack cup. Insert string and knot as shown in drawing ⇨. Glue knot into place and allow to dry. Decorate cup with pieces of construction paper cut to look like feathers and beak on the head of a parrot. Draw in eyes with a marker. Wet piece of sponge and string.

Tie moist sponge to end of string and let dangle. This gives some tautness to the string and keeps it moist, producing a louder sound. Grasp string between index finger and thumb and slide down length of string. This should produce a squawking sound that is amplified by the shape of the cup. Experiment with different size cups and thicknesses of string.

Building a Rainstick

This is a South American or African instrument which amazingly mimics the sound of a tropical downpour. It can be very effective for creating a tropical atmosphere at the beginning of a story. The following is an inexpensive version that can be made by your students.

Materials: (per Student)
2 or 3 paper towel tubes
100 or so round toothpicks
masking tape
paper or plastic wrap
multicolor rubber bands
popsicle sticks
push pin
3/4 to 1 cup lentils
markers, paints, crayons, yarn, ribbon, glitter, etc.

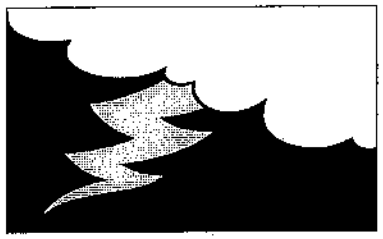
Background: Authentic rain sticks consist of a hollow wood tube with many wood cross-spokes inside. It is filled with beans, seeds, beads, or small stones. When tilted, the seeds cascade through the tube, bouncing off the cross-spokes creating a sound remarkably like rain- both realistic and musical. Genuine rain sticks may be purchased at import stores, but students can create their own by using the above materials.

Activity: Tape tubes together to make one long tube. Reinforce joints with a couple of craft sticks, taping securely. Decorate tube with markers, paint, etc. as desired. Cover one end of tube with plastic wrap or paper held in place by rubber bands or masking tape. Use a push-pin to poke holes in the tube. Start at one end, spacing holes 1/2 nch to 1 inch apart, spiraling up to the other end of the tube.

Blunt one end of toothpick by pressing points on table. Insert pointy end through pin hole and press into tube as far as it will go. Repeat this process for the entire length of the tube.

Remember, the more toothpicks, the more convincing the rain sound. Pour in the lentils and cover the open end of tube with plastic wrap or paper and secure with tape or rubber bands. Experiment with different tubes and fillings to change the sound.

A Stormy Beginning



Recordings of natural sounds can add a sensory dimension to studying the rainforest. A tropical thunderstorm is a particularly good ice-breaking activity or the end to a day of rainforest activities. There is a wide selection of environmental-type tape recordings on the market today that you may wish to purchase, but the following activity is a way that you and your students can create your own indoor thunderstorm.

Background: Contrary to popular belief, it doesn't rain constantly in the rain forest. Some tropical areas have distinct wet and dry seasons, while in others rainfall is more even year round.

Rainstorms often follow a daily pattern. After the cool hours of early dawn, the air starts to heat up rapidly. Thunderstorms grow during the heat of late afternoon.

When the storm breaks, very heavy rains drench the landscape. A few minutes later, the sun may be shining brightly.

Activity: Have students sit cross-legged in a circle or semi-circle. Have them imagine that the air is becoming quite humid and still. Start by quietly rubbing your palms together, making a soft rustling sound. Begin on one side of the group, make eye contact with the students one by one, and have them imitate the action. When everyone is rubbing his or her palms, begin snapping your fingers. Again, begin at one side of the group, cueing people into action one by one. Have the action sweep over the group in a wave. Follow finger snapping by patting your hands on your legs and finally by stamping your feet.

As the storm subsides go through the first three steps in reverse order, patting legs, snapping fingers, rubbing palms. Emphasize that it is now quite cool and that the storm you just created is part of a daily cycle in many forests (a fan could bring this point home).

PART THREE

An interview with the creators of STOMP

Luke Cresswell and Steve McNicholas

How would you describe STOMP?

STEVE: It is a piece of theatre that's been created by musicians. It doesn't have narrative and it doesn't have dialogue and it doesn't have melody particularly, but it is totally rhythmically based. Everything that happens in the show has totally to do with rhythm. The prime directive for all the performances is: rhythm comes first. Movement comes second and we try to make that mixture more interesting and more palatable by adding levels of comedy to it.

Where do you get your ideas from?

LUKE: Ideas come from anywhere. A lot of it is using manual props because they obviously lend themselves to rhythm and drumming like a broom or hitting a dustbin or hammers - they are quite obvious things. Other ideas are more surreal, like walking on oil drums - just drawing little pictures and wouldn't it be great to have great platform shoes and people walking around on them. The ultimate STOMP. And in small things where you want to introduce visuals as well as sound like Zippo lighters, which is trying to do something which is quiet and it makes you listen and you tune in to it. But they are all everyday objects that you can use, anybody can find and anyone can have a go at.

STEVE: Yes, most of the ideas come from everyday life so they are objects like brooms and

Zippo lighters. But whenever we put a routine together we are always thinking not just in terms of the rhythmic qualities, the sound qualities of the instruments, but also what kind of visual impact they have.

How do you choose people for STOMP... are they musicians, dancers or both?

LUKE: I think you are looking for personalities. You can teach someone, to a level, how to drum. And you can also teach someone, to a level, how to perform. But you can't bring out a personality or someone's charisma. That has to be there from the beginning. So you are looking for people obviously with a sense of rhythm but, also with a sense of adventure, who want to take the project on and want to create something themselves. There is a lot of room in STOMP for people to add their own ideas and to bring their characters out and that is very important. And that again stops it from just being self-indulgent non-stop drumming.

It is like you can teach someone the language of STOMP, but it is up to them how they use it. That is the most important when you are looking for someone to perform in STOMP.

IS THERE ANYTHING YOU CAN'T USE TO MAKE MUSIC?

LUKE: You can make music out of absolutely anything, whether it's, you know, tapping an old Coke can, or picking up pebbles on a beach. It's what you want to do it. And I think the hardest hing with STOMP, when you are trying to put a piece together that is visual, it has got to have some sort of internal logic to it, you know, whether that's a reason that makes it humorous or whether it's just dramatic, but there has to be something, because otherwise we can just tap away for ever. So yes you can. The question is why would you want to.

STEVE: Yes, there are things that we have experimented with and turned down, but only because it didn't fit within the context of the show. Whenever we do put a new piece together we want to know where it is going to fit in the show, how it is going to go with the flow of the show.

Has your show been influenced by coming to America?

LUKE: I think you could say that most of the show was influenced by America before we got there. You know, whether it be from the Nicholas brothers, or all the great tap-dance that came out, or FUNK or rhythms. New York, or our

imagination, our version of New York in our heads has always been an influence in STOMP.

STEVE: Yes, I think an important thing to say is that when we put the show together, we certainly were influenced by a lot of Old American performances and films. But at the same time, we are influenced by groups like, obviously, Kodo from Japan or Burundi Drummers from Africa, who can make a whole show out of rhythm which is obviously what we intended to do. But we also wanted to make it peculiarly British and that usually ends up being eccentrically British.

STEVE: The show, STOMP, is now in its fifth year. We put the show together thinking well, maybe something will happen with it. We basically stuck our necks out and put together this eight-piece show for the Edinburgh Festival in '91 and it just took off from there. We went from there almost straight away to Australia to a tour of all the festivals in South East Australia, and we've not looked back since.

CAN ANYONE DO THIS?

LUKE: I think anyone can do STOMP. We've done shows in Brighton, England and Melbourne, Australia where we have taken fifteen or twenty extra people, from any walk of life, not as auditions, just people who are keen, and worked them in to a show. Anyone can do STOMP to a level, obviously it needs to be at different levels. Some people can

do, you know, you give them the imagination, you give them the ammo, and they'll do incredible things. Some people will only go so far. But everybody can make rhythm out of their hands and their feet and everybody can drum. Everybody does drum all the time. That's partly what, audiences get out of the show. The amount of people that come up and say I bang on my kitchen table, or I muck about with my broom all the time, but I never thought of making it into a show.

Does STOMP have a message?

STEVE: If there is a message (which everyone seems to expect from theatre), it is that you can make something out of nothing. Using junk , household and industrial objects, by its very nature, challenges the issue of waste and challenges the notion of culture as being highbrow or detached (ie, you don't have to buy a cello or a drum kit to make music). There's also an element of ritual in our work: everyone generally comments that some of the pieces in the show are almost tribal. STOMP has been described as a musical without music... Even though the show is really just a succession of different pieces, there is an element of getting to know the performers' character better through the show, so it is also about group dynamics and how wildly contrasting personalities can work together.

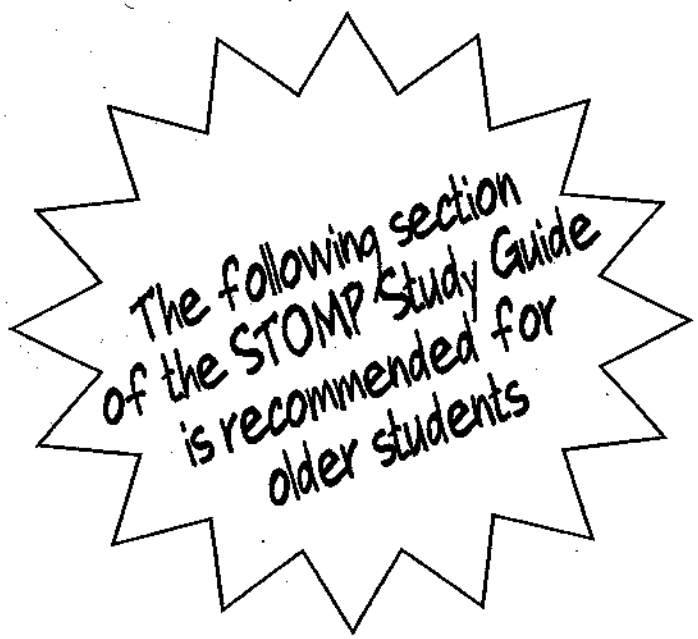
Beyond that, it is really down to the attitude of the group. We want to amuse, uplift and inspire. We feel we've succeeded when the audience leaves

trying to play every object in their path as they leave the theatre.

What do you expect your audience to leave with?

LUKE: STOMP is a very up show, a very positive show, and I think the idea is an extremely simple idea, and I don't think there is any question about that, but it's performed with immense enthusiasm, with a lot of sweat and a lot of energy. I think what it leaves an audience with is the sense of: well it is such a simple idea and yet it works so well. "I had an idea I've never done, I'm going to go and try it", and it doesn't necessarily mean a rhythmic idea, it could be any idea. Well, I hope it is a positive injection of "go and do it. Get up, get off your bum and do it."

PART FOUR



Simple sound

Sound depends on three things: *a vibrating source* to create the sound waves, *a medium* (such as air) to carry the waves, and *a receiver* to hear them. Soudwaves can't travel through a vacuum.

Comparing sound waves to water is a good way to explain the basic concept of how sound travels. However, keep in mind that just as water ripples from a pebble look different than ripples from a large rock, sound waves also vary in size.

Suppose someone hits a trash-can lid with a drum stick, the lid will rapidly bend outward and inward in the air. This movement pushes and pulls the air next to the surface of the metal creating a sound wave. The wave travels outward from the trash-can lid, becoming weaker and weaker until it dies away. However, if the trash-can lid is struck with a heavy mallet, the sound waves will cause more movement and will be heard a further distance away.

Sound waves travel at a constant speed, no matter how loud or soft the sound. Temperature does affect their speed. At room temperature (70 degrees Fahrenheit) sound travels in air at 1,129 feet per second. With each rise of one degree, the speed increases by more than one foot a second. Some mediums are better at **conducting** sound than others. Like all gasses, air is a poor medium for sound waves. Liquids, such as water, are better, and rigid, solid substances, such as iron and stone, are even bette, while rubber, cork, and

cotton are some examples of poor conductors.

It is for that reason that STOMP doesn't use many of these substances to create its sounds. With "rubber pipes" STOMP utilizes the medium of rubber to create a very musical and soft sound, which contrasts to the metallic clashes of the trash cans or even the Zippo lighters.

Some sounds are high and others are low, some are loud and others are barely audible, some are pleasant while others are harsh. The three basic properties of any pure sound are its pitch, intensity and quality.

Pitch is the rate at which the vibrations are produced. The higher the frequency of the tone, the higher the pitch.

Intensity depends on the strength, or amplitude, of the vibrations producing the sound. If a piano string is struck forcefully the string swings back and forth in a wider arc. The stronger vibration then produces a louder tone since stronger vibrations compress the molecules of the air more forcefully and gives them greater energy, which is interpreted by our ears as a louder sound.

Quality, or timbre, of a sound determines whether a sound is pleasant to hear. The melodic sound of the rubber pipes may have a pleasant quality, whereas the crashing of the oil drums may be unpleasant.

Each item creates a sound that is comprised of a basic frequency and a range of softer, higher frequencies, called *overtones.* The quality of the sound is distinguished by the range of frequencies, or harmonics, contained in the sound and its accompaning overtones.

Music: Controlled Sound

To produce the patterns of sound we call music, it is necessary to control or limit the frequency and intensity of the sound waves. Different types of musical instruments do this in different ways. Wind instruments such as the organ, flute and trumpet do this by means of a property of sound known as **resonance**: the process by which sound vibrations build up.

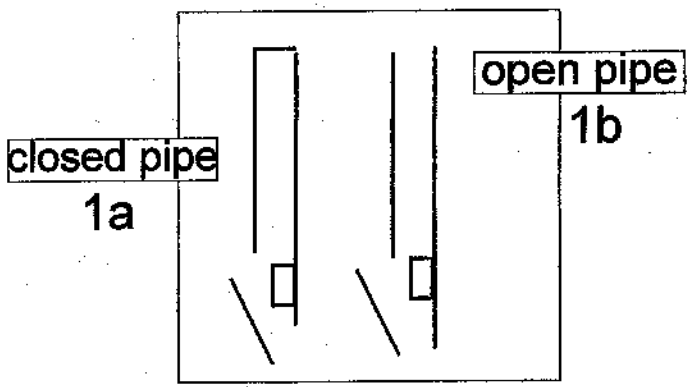
Resonance reinforces sound in much the same way that a mechanical movement can be reinforced. Suppose you are pushing a swing. To get it to swing high, you must push it at the exact tempo of its natural frequency of motion. A slight force applied each time the swing reaches its highest point will soon build up a wide movement.

An example from acoustics would be the rattling of a window when a low-flying airplane passes overhead. If the natural frequency of vibration of the windowpane happens to be the same as one of the frequencies that make up the noise of the plane's engines, the window will reinforce (resonate) the sound. In the same way, a certain note on the piano may make a chandelier tinkle, and a singer's high note may cause a glass to vibrate to the point of breaking.

Exploration 7

Pinch together the prongs of a dinner fork so that they are set into vibration. The sound is very faint. Now press the end of the handle firmly down against the top of a hard table. The sound at once becomes remarkably loud.

In a closed organ pipe (**Figure 1a, below**), a jet of air blowing just inside the sharp lip of the pipe builds up extra pressure there. This region of compression travels down the pipe at the speed of sound and is reflected back. When it reaches the open end once more, the compression pushes the airjet out of the tube. The pressure is relieved, the airjet comes back into the tube again, and everything repeats. The length of the pipe regulates the frequency of vibration of the air jet and thereby the frequency (pitch) of the note.



Exploration 2

The simplest of all wind instruments is a tube or tall bottle that you can blow by directing a stream of air across the open end, just inside the far edge. Try bottles of different length and observe that the longer ones give deeper notes.

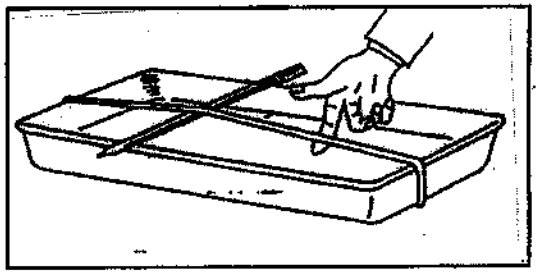
An open organ pipe, as well as most brass and woodwind instruments, is open at the far end. The way sound is reflected from the end is changed by this. It is the length of the pipe that controls the pitch of the tone (**Figure 1b**). Other wind instruments use flexible reeds or the lips of the player instead of an air jet, and some, like the cornet and tuba, shunt air through different lengths of tubing.

A vibrating body may also transmit its movement to another body with a large surface to magnify the sound by setting more air in motion. The sounding board of a piano, the body of a violin, and the diaphragm of a loudspeaker are all examples of **forced vibrations**: they amplify *all* frequencies transmitted to them.

Bowing, plucking, or striking the string at different points in its length creates different frequencies of vibration. The thickness of the string and the point at which it is stopped or struck are ways of controlling the frequency of the sound produced.

Exploration 3

Check some of the facts about vibrating strings by making a simple one stringed guitar. Stretch a rubber band around a long pan, such as a baking tin. Use a stick or a pencil as a "bridge." With the bridge absent, pluck the string and note the pitch of its tone. Then insert the bridge under the center of the string, pluck either half, and notice that the tone produced is the octave of the first one.

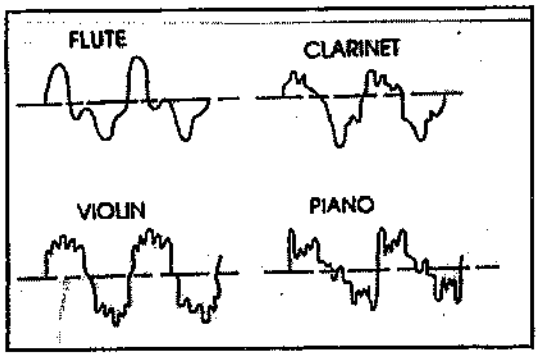


Placing the bridge at the quarter point will give the next octave. Also try to produce the familiar *do-mi-sol-do* of the major chord by using the "open" string then placing the bridge at distances 1/5, 1/3 and 1/2 from the left end, each time plucking the right hand portion of the string. Another fact you can check is that tightening a string raises its pitch.

Percussion instruments such as drums and bells create tones by the striking of bars, plates, stretched skins, or some other material that give their motion to the surrounding air. The thickness of the material, its density, and so on determine its rate of vibration and therefore the pitch of the sound.

Different types of instruments also produce different qualities of sound. These have to do with harmonics, also called overtones, which are vibrations at different strengths whitin the same tone. Electrical devices called harmonic analyzers can analyze the complex waveforms produced by different sources **(Figure 2)** and modern electronics can be made to reproduce (synthesize) these natural waveforms.

Figure 2



Noise vs. Sound

The simplest definition of noise is "unwanted sound." However, the question arises: unwanted by whom? The teenager walking down the street with his suitcase-sized stereo likes what he hears, but others may not. Classical music from a car radio may be noise to people on the street, but the driver of the car wouldn't feel that way.

It is generally accepted that a person's perception of noise depends on the characteristics of the sound; its loudness, frequency, and whether it is customary or unusual. To some extent, an individual's age, emotional makeup, tastes, beliefs and other factors determines the degree of annoyance with noise. The newspaper skit in STOMP addresses the issue of noise verses sound. In this section, each of the performers is annoyed by the noise of others rustling their newspapers.. However, the audience perceives the very same rustling noise as music and enjoys its sound.

All about Rythm

For Luke Cresswell and Steve McNicholas, the founders of STOMP, rhythm is the music of life. They hear rhythms in everything. As Steve says, "You see people walking to work. Some walk slowly because they are depressed and

mood. That's all rhythm. People running up and down steps, people flicking a newspaper when they read it.... I think rhythm is knocking around everywhere." STOMP opens up people's minds and encourages audiences to recognize the rhythms of their lives.

People aren't the only ones capable of creating rhythms, inanimate objects also create rhythm. For example, machinery like trains or natural things such as the wind or sea all make sounds and rhythms. Rhythmic contrasts between man-made and natural sounds describe their differences.

Think about an old steam train, which works on the basis of pistons. The sound of pistons is regular, consistent and invariant. Its regularity is important for the train to maintain a constant speed. If the rhythmic pace accelerates so does the train. The rhythm controls the train and the train controls the rhythm.

Natural occurrences, like wind, rain and the sea are not controlled. This is reflected in their rhythms which are irregular, inconsistent and unpredictable. Rhythms do not only describe mood and attitude, they also indicate form and motion.

Many people describe STOMP as "pure rhythm." Is this true, can it be termed music? When looking at classical or popular music, rhythm is an intrinsic and inseparable component. In the opening bars of Mozart's ***Requiem*** or Michael Jackson's ***Thriller***, the rhythm is every bit as important as lyrics, melody and intensity.

In STOMP, the balance between these elements has been off-set, making rhythm the most important factor. However, in elevating rhythm the other elements have not been discarded.

The combination of intensity, melody and tone

with rhythm gives form to the pieces. For example, the show opens with one person, one broom and a simple rhythm. As more performers enter, the rhythms get more complex and the *intensity* crescendos until it reaches a climax, and then diminishes to finish off the piece. This is the basic form of any piece of music. A clear example of different *pitches* being used is "Pipes", where the flexible, hollow pipes of differing lengths and size create an eerie sort of melody.

Perhaps the most important alternative element to rhythm is *tone*. For example, STOMP uses the loud clashing tone of the drums in contrast to the crisp rustle of the paper-bag. The smooth swish of the brooms or the quiet clicking of the Zippo lighters are differences in tone which gives texture to the rhythms.

Similarly, the different tones which are made by a saxophone, trumpet and bass played together create the sound of a jazz band. STOMP has all the elements of traditional music, including melody, but the balance between the different components has been altered to create a style of music that is anything but traditional.

Music and sound exist even if we do not notice. STOMP has shown us that the strangest things can be musical. Think of birds calling in the fields, rain on a tin roof, a semi or large truck passing cars, or you and your friends at the mall. Sounds are an integral part of our lives and rhythm is an inseparable part of sound.

There truly is a rhythm to life. **Just listen and you'll hear it, too.**

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