



*Good Vibrations:
The Science of Sound*

Language & Literacy
Enhancement Activities

Introduction

This supplement provides information on how to use the Cloverbud's language and literacy enhancement materials. These activities complement the Cloverbud's curriculum by extending the original activities with alternatives, extensions, and variations that have a focus on language and literacy development. All of the enhancement activities coordinate with current Cloverbud theme activities and are similar in design and format. These activities have been aligned with Pennsylvania Department of Education Academic Standards. Like the original Cloverbud activities, these activities encourage learning new thing for language, literacy, science, technology and positive attitudes through hands on projects.

Objectives

Build listening, speaking, reading, vocabulary, and writing skills through Cloverbud theme activities centered on children's books.

Group Size:

6-8 children per adult volunteer

Time Frame:

Each activity will take about 5–15 minutes to complete and can be integrated into the Cloverbud lesson.

1. Getting Started



ACTIVITY: Graphic Organizer – Day Sounds – Night Sounds

PDE Academic Standards for Language and Literacy: 1.2 Reading Critically in All Content Areas

- A. Read and understand essential content in informational texts and documents in all academic areas.
 - Analyze text organization and content using established criteria.

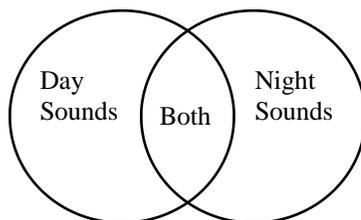
Materials: Recorded sound effects (see Resources Sound Websites for site with free downloadable sound effects) , chart paper, markers

Preparation: Invite the children to listen to a collection of sound effects. Identify what the sounds are and when they are heard. Categorize them using a Venn Diagram to sort them into Day Sounds, Night Sounds or Both.





Sample Venn Diagram layout, add children's ideas in appropriate circle section:



Book Suggestion:

The Sound of Day, the Sound of Night, written by Mary O'Neill

Night Noises, written by Mem Fox, illustrated by Terry Denton

ACTIVITY: Make a Sound Detector

PDE Academic Standards for Language and Literacy: *1.4 Types of Writing B. Write informational pieces using illustrations when appropriate.*

Materials: metal can or tin (like a tuna fish can) with both ends carefully removed, a large rubber band, a round section cut from a latex balloon large enough to stretch over one end of the can, approximately 1 tsp of rice or salt. Pencils and science log to write down observations. Optional: small decorative mirror from craft store, glue and flashlight. Chalkboard or chart paper and markers. Ruler to measure bounce height of grains and/or stopwatch to time the length of vibrations.

Preparation: Carefully stretch the balloon circle over one opening of the can and hold in place with the rubber band to make the Sound Detector. Gently scatter the rice or salt grains on top of the balloon. Now make the air near the Sound Detector vibrate by clapping or even shouting at it. Watch the grains of rice or salt bounce up and down as the balloon vibrates from the sound waves. Experiment with different noises. Write down on your science log the noises that make the balloon vibrate the most and/or the longest. Use a ruler to measure bounce height of grains and/or stopwatch to time the length of vibrations. Hint: if using the ruler tape it to the side of the can.

Optional: glue a small mirror on to the balloon. Darken the room and aim the flashlight beam on to the mirror so that it reflects on to a chalkboard or wall where you can tape a piece of chart papers. Have one child hold the light steady on the mirror. Have another clap or shout at the sound detector and watch the light move on the wall as the balloon vibrates from the sound waves. Have a child mark the high and low points of the light movement on the board. Experiment with different noises and see which noise makes the light from the sound detector move the most. Create a poster graph of the noises on chart paper.





Book Suggestion:

Everyday Science: Sound, written by Peter Riley

Experiments with Sound: A True Book, written by Salvatore Tocci

Fascinating Science Projects Sound, written by Bobbi Searles

I See a Song, written and illustrated by Eric Carle



2. Digging Deeper

ACTIVITY: Amplify Sound – Make a Stethoscope

PDE Academic Standards for Language and Literacy: *1.6 Speaking and Listening A. Listen to others*

Materials: chart paper, markers, rubber tubing, small funnels, pencils, and science logs .
Optional: a real stethoscope

Preparation: As a group, have the children create a list of animals on the chart paper that have large ears. Discuss how large ears help collect sound waves that can make sounds seem clearer and louder. If available, show and model the use of a real stethoscope and talk with the children using any examples of their use during visits to the doctor. Make a simple stethoscope by inserting the rubber tubing into the tip of the funnel. Have the children write down in their logs sounds that they can hear better with their extra big ear; for example: heartbeats, breathing, clock ticks, computer hums. Safety warning: remind children not to insert the end of the tubing into their ear and use a tube that is larger than their ear canal.

Book Suggestion:

Fascinating Science Projects Sound, written by Bobbi Searles

Make it Work! Sound: The Hands-on Approach to Science, written by Alexandra Parsons, et al.

The Science of Sound, written by Neil Ardley

ACTIVITY: Doppler Effect—Vibrations on the Move

PDE Academic Standards for Language and Literacy: *1.6 Speaking and Listening A. Listen to others*

Materials: large outdoor space, kazoo, science logs, pencils, strong cotton string or yarn,



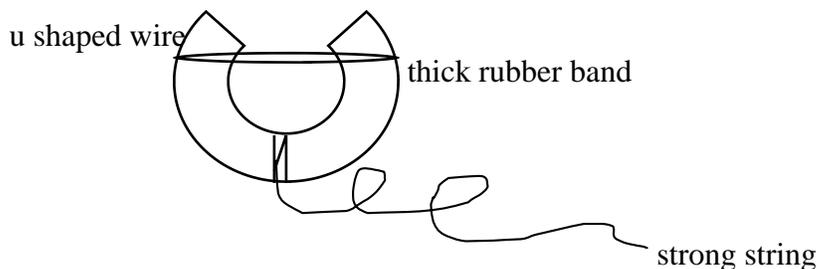


strong wire approximately a foot long (recycle tip: cut from the bottom of wire clothes hangers) , blunt nose pliers, thick rubber bands

Preparation: When a sound travels towards you , you hear more vibrations per second, so it sounds higher. When a sound travels away from you, you hear fewer vibrations per second, so it sounds lower. This change in the sound's pitch as it moves is called the Doppler Effect.

Have the children work together in pairs for this experiment. Have one child, the science recorder, stand in the middle of a large open space. The partner runs towards the science recorder blowing the kazoo. The recorder needs to write down what he/she hears in the science log. Experiment with the Doppler Effect by changing the speed of motion (walk, run, skip) and the sound (whistles, rhythm instruments, noise makers). Write down and discuss your experiment findings. How did the sound change as it moved nearer to you? How did the sound change as it moved farther from you? Did the speed or kind of sound make a difference or did you still hear the Doppler Effect?

Create individual Doppler sirens. Bend the wire into a horse shoe shape and twist the ends to form a "u". This is to make sure the rubber band does not come off while it is spinning. Place the rubber band in the middle of the horse shoe shape so that it looks like an upside down letter "a". Tie a length of string at the bottom of the horse shoe. The length of string can vary depending on the size of the child, approximately two feet is a good starting length for most children. Let the children whirl the Doppler siren around their head. Safety warning: Work in a wide open space, so that everyone has plenty of room. Experiment by making the string longer and shorter and by spinning the siren faster. Have the children write down in their science log what they hear and discuss their findings as a group.



Book Suggestion:

Fascinating Science Projects Sound, written by Bobbi Searles

The Magic School Bus in the Haunted Museum: A Book About Sounds, written by Joanna Cole, illustrated by Bruce Degen (alternative: *The Magic School Bus Explores the Senses*)

What's that Sound? (Science Solves It!), written by Mary Lawrence, illustrated by Lynn Adams





ACTIVITY: Special Sound Words

PDE Academic Standards for Language and Literacy: 1.6 *Speaking and Listening* A. *Listen to others.* B. *Listen to a selection of literature.* ■ *Identify and define new words and concepts.*

Materials: chart paper, markers, pencils, paper, CD/cassette player, sound effect CD/ cassette, and a book with onomatopoeia words Optional: rhythm instruments and colored pencils.

Preparation: Interesting sounds can be written down as special words called onomatopoeia. The “tick tock” of a clock and the “buzz” of a bee are examples of onomatopoeia. Read out loud a poem or a story that uses onomatopoeia. See the book suggestions reading list. Next, as a group, listen to a series sound effects and write down on the chart paper the onomatopoeia sound words. Encourage the children to write their own poems using the onomatopoeia sound words from their list. Read the poems out loud and if appropriate use rhythm instruments for accompaniment. If time is available illustrate the poems with color pencils.

Book Suggestion:

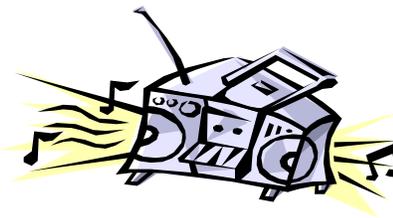
Charlie Parker Played Be Bop, written by Chris Raschka

Night Noises, written by Mem Fox

A Rumpus of Rhymes: a book of noisy poems, written by Bobbie Katz

What Charlie Heard, written and illustrated by Mordicai Gerstein

Zin! Zin! Zin! A Violin, written by Lloyd Moss, illustrated by Marjorie Priceman



ACTIVITY: Feel Sound Vibrations

PDE Academic Standards for Language and Literacy: 1.6 *Speaking and Listening* A. *Listen to others*

Materials: CD/cassette player, CDs/cassettes of a variety of music styles, balloons, rhythm instruments, pencils, science logs, *Moses Goes to a Concert*

Preparations: Read aloud *Moses Goes to a Concert*. Listen to a song. Then make it easier to feel the music. Experiment with feeling sound vibrations. Place the CD/cassette player





on the floor and have the children either sit on the floor or take their shoes off and put their feet on the floor. Let each child blow up a balloon and tie it off. Have each child gently hold the balloon in their lap as they listen to the next song. The balloon will help collect the sound vibrations, as will having their stocking feet on the floor. Discuss how feeling the sound vibrations made the listening experience different from their first time.

Let the children work in pairs facing each other. Have them take turns using rhythm instruments and holding their balloon. Experiment with feeling sound vibrations. Change how close the children stand to each other, shoes on and shoes off, and with balloon and without balloon. Have the children write down what they did. Discuss as a group when it was easiest to feel the sound vibrations.

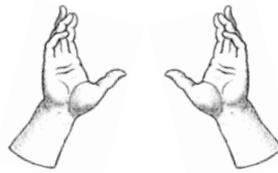
Book Suggestion:

Make it Work! Sound: The Hands-on Approach to Science, written by Alexandra Parsons, et al.

Moses Goes to a Concert, written and illustrated by Isaac Millman (Alternative: *Moses Goes to School*)

Sounds All Around, written by Wendy Pfeffer

The Science of Sound and
and Leslie Johnstone



Music, written by Shar Levine

3. Looking Within

ACTIVITY: Sign Language

PDE Academic Standards for Language and Literacy: 1.7 Characteristics and Functions of the English Language A. Identify words from other languages that are commonly used in English

Materials: Manual alphabet patterns, *Moses Goes to School*, sign language reference books from your local library (see list below for suggested titles)

Preparation: Read aloud *Moses Goes to School* to introduce a discussion on sign language. In small groups of two or three have the children use sign language reference books from your local library or a sign language dictionary on the internet to find the signs for a simple song like “Take Me Out to the Ball Game.” Have each small group perform their song for the large group and or parents and caregivers at pick up time or a special session. Optional: this project can be broken down into smaller time segments and done over several sessions. As an extension, the children can also take turns teaching each other the





songs they learned.

Book Suggestion:

Dad and Me in the Morning, written by Patricia Lakin

The Handmade Alphabet, illustrated by Laura Rankin (Alternative: *The Handmade Counting Book*)

Moses Goes to School, written by Isaac Millman (Alternatives: *Moses Goes to a Concert*, *Moses Goes to the Circus*, *Moses Goes to a Play*)

Reference Books on Sign Language to use in this Session:

American Sign Language the Easy Way, written by David Stewart

Signing for Kids, written by Mickey Flodin

Signing is Fun, written by Mickey Flodin

Signs for Me: Basic Sign Vocabulary for Children, Parents, and Teachers, written by Ben Nahan and Joe Dannis

Songs in Sign, written by S. Harold Collins

The Joy of

The American Sign Language
written by



Signing, written by Lottie L.

Lou Fant



Riehof

can Sign Language Phrase Book,

ACTIVITY: Make a Model of the Ear

PDE Academic Standards for Language and Literacy: 1.4 Types of Writing B. Write informational pieces using illustrations when appropriate.

Materials: Have children save and collect materials that they can recycle for creating a group model of the human ear, for example; straws, tubes, balloons, cans, funnels, etc. On the day of construction have on hand: diagrams of the human ear, a variety of tapes and glues, index cards and pencils for labeling model sections.

Preparation: Have the children create a three dimensional model of the human ear. Label each section with its scientific name and a description of what that part does. If time allows





let children practice describing what each part of the ear does, so they can share their information on the model with their parents or caregivers at pick up time or a special session .

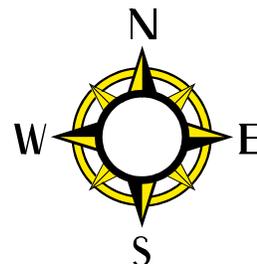
Book Suggestion:

Fascinating Science Projects Sound, written by Bobbi Searles

The Magic School Bus in the Haunted Museum: A Book About Sounds, written by Joanna Cole, illustrated by Bruce Degen (alternative: *The Magic School Bus Explores the Senses*)

Make it Work! Sound: The Hands-on Approach to Science, written by Alexandra Parsons

This book has directions for creating a working model of the human ear.



ACTIVITY: Sound Direction - Hearing Game

PDE Academic Standards for Language and Literacy:

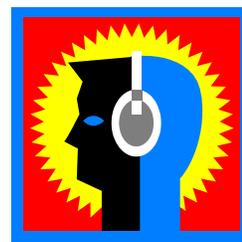
1.6 Speaking and Listening A. Listen to others

Materials: double sheets of chart paper or disposable type table cloth, string approximately 2 feet in length to use as a compass, markers, bandana or blind fold, and a variety of noise makers or rhythm instruments (these could be made by the children).

Preparations: Tie a marker to one end of the string. Anchor the other end of the string in the center of the tablecloth or paper and use it to draw a wide circle. Label the circle into four sections of north south, east and west. Depending on the maturity of your group of children, you may want to include the extra directional points of northeast, southeast, northwest, etc.

To play the game, have a child sit in the center of the floor compass facing north with the blind fold on. Have the rest of the children stand with their instruments in a circle around the child sitting down. Have a child play an instrument. The child sitting on the compass then points to the direction he or she heard the sound from and identifies the direction. Younger children may not be able to identify the sound with a specific direction, so encourage the use of words prepositional words like back, front, left, right, etc.

Once children are comfortable identifying the direction of sound, try an experiment and have them cover one ear while the rhythm instrument is being played. Ask the question: Is it harder or easier to find a sound direction with one ear or both? Why do you think this is the case?



Book Suggestion:

The Magic School Bus in the Haunted Museum: A Book About Sounds, written by Joanna Cole, illustrated by Bruce Degen (alternative: *The Magic School Bus Explores the Senses*)





Make it Work! Sound: The Hands-on Approach to Science, written by Alexandra Parsons

Sound Off, written by Adrienne Mason

4. Bringing Closure

ACTIVITY: Using Sound Words

PDE Academic Standards for Language and Literacy: *1.1 Learning to Read Independently E. Acquire a reading vocabulary by identifying and correctly using words.*

Materials: CD/cassette player, CD/cassettes of different styles of music and sound effects, white board or chart paper, pencils, paper

Preparation: This is an extension activity for both the “Music and Movement” and “Recording Sounds” activities. In this activity the children will be “recording” or writing down words to describe the feelings that music and sounds make them feel. In addition to the adjectives the children used to describe the mood of the music in the “Music and Movement” activity, encourage them to use the sound vocabulary words used through out this unit like: volume - loud, soft, pitch/frequency - high, low, and tempo - fast, slow.

Book Suggestion:

Duke Ellington: The Piano Prince and His Orchestra, written by Andrea Davis Pinkney, illustrated by Brian Pinkney

The Carnival of Animals, composed by Camille Saint-Saens, commentary by Barry Carson Turner, illustrated by Sue Williams

Peter and the Wolf, composed by Sergy Prokofiev, illustrated by Valdimir Vagin

ACTIVITY: Measure Sound

PDE Academic Standards for Language and Literacy: *1.6 Speaking and Listening E. Participate in small and large group discussions and presentations.*

Materials: chart paper, markers, Decibel chart, and pencils

Preparation: Brainstorm a list of common sounds that the children hear every day. Have the children write on the Decibel chart where they think the sounds should go compared to the examples on the chart. Discuss as a group the importance of protecting your ears





against loud sounds.

Book Suggestion:

Fascinating Science Projects Sound, written by Bobbi Searles

The Magic School Bus in the Haunted Museum: A Book About Sounds, written by Joanna Cole, illustrated by Bruce Degen (alternative: *The Magic School Bus Explores the Senses*)

Why Should I Turn the Volume Down? And Other Questions about Healthy Eyes and Ears, written by Louise Spilbury

5. Going Beyond

ACTIVITY: Sound Bingo

PDE Academic Standards for Language and Literacy: *1.6 Speaking and Listening A. Listen to others F. Use media for learning purposes*

Materials: Bingo patterns for cards, CD/cassette player, CD/cassette sound effects, small markers like pennies or buttons, scissors, glue sticks

Preparation: Prior to playing the game the children or volunteers will need to make a bingo card for each child. Have the children practice their listening skills by identifying sounds from the sound effect CD/cassette and placing their markers on the appropriate sound category on their BINGO card. Play till someone makes five in a row, vertically, or diagonally. Switch cards and play again.

Book Suggestion:

Charlie Parker Played Be Bop, written by Chris Raschka

Song and Dance Man, written by Karen Ackerman, illustrated by Stephen Gammell

Why Should I Turn Down the Volume? And Other Questions about Healthy Eyes and Ears, written by Louise Spilbury

Zin! Zin! Zin! A Violin, written by Lloyd Moss, illustrated by Marjorie Priceman





