



PURPOSE OF EXPLORING SOUND WITH INFANTS AND TODDLERS



Exploring sound has important developmental benefits for young children. As infants and toddlers hear and feel sounds early on, they begin to perceive differences among sounds that are important for both language development and musical development. If certain neurological pathways are not built early, they will become increasingly difficult to build later. The time to build and maintain those information highways is during the first months of life (Feierabend, 1997).

The notion of playing with sound includes both the sounds we can make and the sounds we can hear. This begins with infants and toddlers as they learn by exploring the cause-and-effect of producing noise, gaining an awareness of how musical sounds are made, and practicing auditory discrimination skills in order to distinguish different sounds. Infants and toddlers learn by interacting with their world and persist in experimenting with interesting materials and figuring out how they can “make things happen.” They may begin by alerting to sounds, moving their bodies to familiar rhythms and voices, patting, and banging. As they grow and have more experiences with materials, their actions become more complex. Intriguing materials can inspire young children to begin to discriminate between different kinds of sounds, objects that produce different qualities of sound, loud and soft sounds, and high and low pitches.

SIX DISCOVERIES OF INFANCY IN THE CONTEXT OF SOUND

Exploring sounds with infants and toddlers fits well within the *Six Discoveries of Infancy* framework identified by researchers Ina Uzgiris and J. McVicker Hunt in 1975. The researchers categorized learning experiences that take place during the sensori-motor period, which is from birth through age two (Piaget, 1952/1963), and ordered the learning experiences according to their level of complexity (Lally et al., 1992). These categories can assist teachers to understand the learning activities of children during this period of development.

- 1. Learning schemes:** Children explore the physical properties of sound-making materials. They combine objects (cookie tin and wooden spoon to make sound. They put things into groups (*All of the shakers go in this tub*), and find ways to test their world to see how it works (*If I tap the spoon on the table it sounds different than when I tap it on the can*).
- 2. Events are caused:** Children make connections between their action and the result using objects (*If I use a stick to hit the can, it sounds different than when I use my hand*), or using their body (*I can shake the maraca fast or slow and it sounds different*). They explore cause and effect with objects that interest them and notice sound differences the objects make (*When I shake the maraca it sounds different than when I shake the bell*).
- 3. Use of tools:** A tool is something we use to interact with the environment to get what we need or want. As children make connections, they begin to think ahead of time about what they want to accomplish. With experience, they can plan and use tools to reach goals. Children use their senses as their first tool (*When my teacher crinkles the paper it makes a different sound than the foil*) and later their body becomes a tool (*The bell makes a sound when I move my arm*). Caregivers can be tools (*When I drop the spoon my teacher will pick it up*) and objects become tools (*Using a wooden spoon on the can makes a different sound than the metal spoon*).
- 4. Object Permanence:** From birth to about five months, objects out of sight don't exist. Experiences with objects provides opportunities for infants to understand that if the shaker is inside the box, it still exists or that the spoon is still inside the pan even with the lid on.
- 5. Understanding Space:** A good deal of infant learning has to do with **space** (*Will these beads fit in that tube?*), **density** (*How heavy is that drum?*), **distance** (*How far away is the lid for this pan?*) **movement** (*Can I roll this cookie tin to make a sound? How can I move from here to there?*) and **perspective** (*Oh! That shaker looks different from here. Can I reach that mallet if I stretch my arms? WOW! That maraca looks bigger when I move closer to it*).
- 6. Imitation:** I can make a sound with that tin can if I hit it like my teacher does. My voice sounds louder when I open my mouth wide like my friend does. I can tap the big can and then the little can and the sound is different. I can make my voice softer so the other babies can sleep.

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WHAT DO INFANTS AND TODDLERS DO WITH THE MATERIALS?



Infants and toddlers learn by acting on objects. Exploring sound can help young children investigate the physical properties of objects and promote the developing brain's ability to engage in inquiry, analysis, and logical thought. Interacting with these materials, young children have opportunities to compare objects, explore space, use objects as tools, track objects in space, search for missing objects, and construct relationships that build a foundation for later physical science concepts. Young children interact with the materials when they grasp the objects, mouth them, bang them together, strike one object on another, and make a steady beat. Their interest in sound-making will inspire them to try out their ideas and make connections.

Children learn when they make connections between their actions and the result they observe. They demonstrate that they are working on new learning when they repeat the action over and over to make sure that it will do the same thing each time. When something does not work the way they expected, they might vary their action and try again and again. Every time they produce these actions they are making a connection between what they did and the result. As they discover these connections, they build mental relationships, that is, they learn!"

All of these actions allow the infant or toddler to construct relationships about loud and soft, fast and slow, and begin to notice the quality of sounds. Attending adults' questions and comments should reflect what is happening and offer new challenges or problems to solve. Infants and toddlers will have their own questions to investigate and will inspire one another to solve problems.

THE ROLE OF ADULTS IN SUPPORTING INFANTS AND TODDLERS IN SOUND INVESTIGATIONS

Teachers play a pivotal role in children's active construction of knowledge when they intentionally provide environments and experiences that support children in actively building concepts and skills. An essential role of teachers working with young children birth to age five is to support children's active construction of knowledge (California Dept. of Education, 2016). This includes:

- responding to and connecting with young children
- engaging in serve and return interactions
- offering opportunities for the infant to participate in care routines
- organizing a safe and engaging environment
- providing safe and intriguing materials that are open-ended
- providing opportunities for children to figure out something interesting to do
- communicating with families so that school experiences connect to experiences at home (Lally & Mangione, 2006).

Teachers can facilitate the investigation of sound by providing young children with opportunities to explore sound using intriguing materials. Such materials inspire children to begin to discriminate between different kinds of sounds in the environment, objects that produce different kinds of sounds, loud and soft sounds, and high and low pitches.

Teachers are most effective when they are intentional about the materials they offer children, analyze the difficulty of the experience, and consider children's interests when they plan and select materials. They set up the environment to provide multiple opportunities for children to explore the properties and functions of objects, allow ample time for investigation, and scaffold children's experiences with comments and questions that nurture the development of STEM learning dispositions. Interventions can derail the child's agenda or scaffold it. Effective teachers observe carefully and reserve interventions for times when the child is becoming disengaged or disinterested. They consider the child's development when preparing the environment.



SUGGESTIONS FOR INVESTIGATING SOUND AT VARIOUS STAGES OF DEVELOPMENT



Young Infants (4-9 months):

Place the materials within reach on the floor or hang them within reach of an infant's feet so that movement can cause sound. Allow the children to freely explore all of the objects. Encourage the children to strike the different objects to see what sounds they make. Create a chant involving the child's name with simple instructions. Infants and toddlers can begin to follow directions with familiar words while having fun with sound. As the infants engage with the materials, comment on their actions and offer comments and questions: "That makes an interesting sound. I wonder if you could make it sound like that again?"

Older infants and toddlers (approximately 12-24 months):

Set out empty cans of different sizes with the entire lid removed and a variety of strikers such as wooden, plastic, and metal spoons. Start by making comments or asking productive questions, "What can you do with these? I wonder how you could make a loud sound with this can? Can you find a way to make a soft sound? What happens when you choose a different spoon? Add materials as the child continues to engage in play. Be ready to point out what is happening, "What happened when you put the cans together? Which one sounded louder when you used that spoon? I see that you lined the cans up so the tallest one is here and the shortest one is over there. What happened when you hit the tall one? Did it sound different from the short, wide one? Is there anything else you would like to try?"

Hang the music making materials on the side of a fence and have the children make music outside, which will give it a whole new sound. Try to play a tune and sing a familiar song to the tune in order for the children to recognize musical patterns.

Give the children items to shake and encourage them to dance or bounce to the sounds. This will encourage the child to move rhythmically, feeling the beat of the music. As the children bend and bounce in a standing position, they are practicing balance and coordination and enjoying music in a social situation.

Enhance object permanence and auditory memory by hiding behind something and playing an "instrument". The children can try to find them by following the sound. You may need to verbally cue the children to look for the sound.



Older toddlers (approximately 24-36 months):

Young children love experimenting with their voices. What fun to see how different they sound talking or singing into a tube!

Play a variety of cultural music in the background to encourage a specific rhythm or beat. Young toddlers are typically unable to produce a consistent rhythm but practicing will assist with advancing this type of development.

Fill a variety of containers to make shakers and then hot glue the lids. Use containers such as empty pill bottles, plastic eggs, water bottles, or empty spice bottles and fill with sequins, pebbles, metal washers, craft bells, pompoms, cotton balls, or plastic game pieces. Filling and pouring the kinds of contents that do not present a choking hazard into the containers will provide an endless variety of sounds and opportunities to develop fine motor skills.

Do a "sound hunt" around the classroom or outside while on a walk. Ask the children to identify high and low pitches, loud and soft sounds, or sounds that are the same or different.

Assist children with creating noise "categories" such as, all the shaker toys in one container, all the hollow toys in another container, all the banging toys in another container, etc. Allow the children to come up with the categories.



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SUGGESTIONS FOR MATERIALS AND EXPERIENCES TO OFFER INFANTS AND TODDLERS

Introduce a few materials at a time each week for deeper work. Limiting variables allows the teacher to more accurately observe what children are noticing and how they are using materials. Begin by filling a large basket or plastic container with a variety of sound-producing materials for the children to explore. Place the materials within reach of the children. Encourage the children to strike the different objects to see what sounds they make. Give children ample time to investigate the materials that you have selected. Consider having more items available to add if the children did not respond to the initial offerings. *We offer nine categories of materials to explore sound with infants and toddlers:*

1. Kitchen Utensils for a Kitchen Band

- ✓ Large tub or basket
- ✓ Pots, pans, and lids of all shapes and sizes
- ✓ Wooden, plastic, and metal spoons, large craft sticks
- ✓ Variety of kitchen tools that have been checked for safety
- ✓ Variety of empty tin cans with entire lid removed for safety

Things to think about or talk about as children begin to investigate:

Allow children to remove the items from the basket or tub and explore independently. Take note of the items that they are investigating:

- *How are they using the materials?*
- *Which items engage them for longer periods of time?*
- *How do children explore the items differently?*
- *Do some of the kitchen band materials seem to intrigue children more than others?*
- *Do any of the materials inspire children to work together?*
- *What do the children notice?*
- *To what do they pay close attention?*



2. Focusing on Striking

- ✓ tin cans with the lid removed safely
- ✓ empty cans and cans containing a variety of loose material
- ✓ cookie tins (with lids and without)
- ✓ wooden, plastic, and plastic strikers such as spoons

Things to think about or talk about as children begin to investigate:

Allow children to remove the items from the basket or tub and explore independently. Take note of the items that they are investigating:

- *What ways of striking do they try?*
- *Do they strike different locations on the objects as they play?*
- *Do they move the objects in order to investigate different ways of making sound?*
- *What do they notice when they strike a container that is empty?*
- *What about one that is filled with materials?*
- *Do they investigate different strikers and notice the sounds that they make?*



3. Drums

- ✓ purchased drums
- ✓ teacher-made drums
- ✓ mallets and strikers with soft heads, metal heads, hard plastic heads

Things to think about or talk about as children begin to investigate:

The size of the drums affects the pitch, but the manner of striking affects how loud or soft.

- *Can you make big drums sound soft? How could you do that?*
- *Does the big drum sound different than the little drum?*

The type of mallet affects the sound

- *Which mallet makes a loud sound? A soft sound?*
- *Is there a striker that sounds unpleasant? What combinations "hurt" my ears?*

Surfaces where drums are placed and its position in relation to the surface affect the sound (table, rug, tile, flat on the surface or tilted against an object)



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- *Is the sound the drum makes different when it is placed on the carpet?*
- *How does the sound the drum makes change when it is placed on the carpet?*
- *I wonder how it will sound if we lean it against the chair?*

4. Shakers

- ✓ purchased maraca and shakers made especially for infants and toddlers,
- ✓ teacher made shakers with found materials such as spice jars with dried peas or rice inside

Things to think about or talk about as children begin to investigate:

Select music that will encourage students to shake their instruments.

- *Are older toddlers able to shake rhythmically?*
- *Which children can start and stop with the music?*
- *Do some of the shakers interest children more than others? Which shakers do they choose?*
- *What do the children notice? Differences in volume? Differences in sound quality?*

5. Bells

- ✓ purchased wrist or ankle bells
- ✓ handheld bells
- ✓ xylophones
- ✓ resonator bells
- ✓ teacher and student made bells

Things to think about or talk about as children begin to investigate:

- *Which objects do they investigate for a long time?*
- *When xylophones or resonator bells are introduced what do the children notice?*
- *What actions indicate that they notice the difference in sounds?*



6. Rhythm Sticks

- ✓ sticks no more than 8" long
- ✓ two sticks, one smooth and the other ridged, provide more opportunities for varying the experience

Things to think about or talk about as children begin to investigate:

Tapping two together is difficult for children under three. What do older toddlers notice?

- *Do they investigate and notice that there are two kinds of sticks?*
- *Encourage them to try out each kind of rhythm stick.*
- *Do any children rub them together to get a different sound?*
- *Can the older toddlers keep a steady beat?*
- *Do they start and stop with the music?*



7. Paper

- ✓ newspaper
- ✓ copy paper
- ✓ cardstock
- ✓ wrapping paper
- ✓ cardboard,
- ✓ aluminum foil
- ✓ parchment paper
- ✓ parcel paper

Things to think about or talk about as children begin to investigate:

What kinds of actions do children do to make different sounds? (tear, crinkle, wave, slap)

- *What can we do with paper to make sounds?*
- *Which paper sounds loudest?*
- *Can we use paper to accompany a song? How would we do that?*

8. Vocal sounds

Things to think about as children begin to investigate:

- *What sounds can we make with our voices?*
- *You can sing. You can talk. What other things can you do with your voice?*
- *Can you make your voice loud? Can you make it very soft?*
- *What about high and low?*
- *What about short sounds and long sounds?*

9. Sounds we can make with our bodies-

(clapping, stomping, tiptoeing, slapping our knees....)

Things to think about or talk about as children begin to investigate:

- *What sounds can you make with your bodies?*
- *When you clap your hands or stomp your feet, do you move any other parts of your body?*
- *Is there a sound you have made that was hard to do?*
- *Can you clap or stomp to keep time to music?*

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RECOMMENDED RESOURCES/READING

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