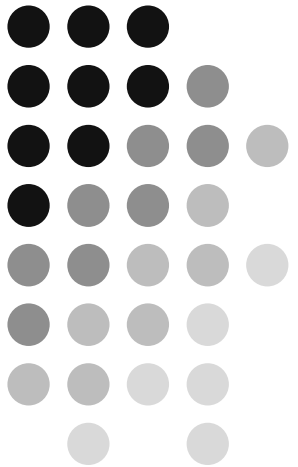
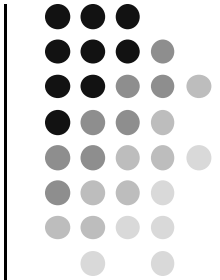
Interactive Intervention For Children With Hearing Loss

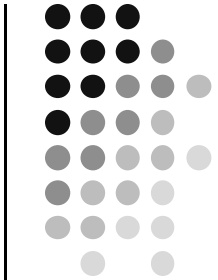


Who We Are



- Graduate Students at The University of Akron
  - Vincci Chan
  - Connie Hartman
  - Andreana Somich
  - Renee Warren
  - Stacy Zajec

Who We Are



- Specialized in working with children/families with hearing impairments
- Funded by a U.S. Department of Educ. grant
- Worked with many hearing specialists in a variety of disciplines

Check us out at www.auditoryoptions.org

By The End You Will Be Able To...

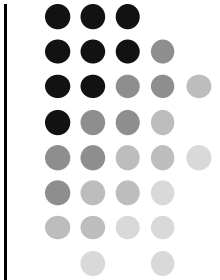
- Identify where a child falls on the auditory hierarchy
- Create auditory goals for early and late listeners
- Perform a functional listening check
- Utilize many resources that can be implemented when working with children with hearing loss

Listening

- "Listening" is the cornerstone of the educational system

- 70% of a child's school day is listening

Communication Options

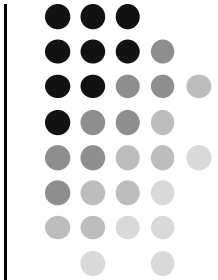


- Auditory-Verbal
- Auditory-Oral
- Cued Speech
- Total Communication
- Manual Communication
- Sign Language

No matter what the choice

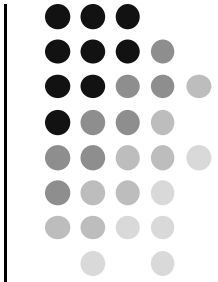
- ALWAYS support the family's choice and desired outcomes for their child

The Goal Of AV Intervention



- “Children “grow-up” in typical listening and learning environments that enable them to become independent, participating, and contributing citizens in mainstream society.”

Auditory-Verbal Techniques



- Acoustic Highlighting
- Auditory Closure
- Rewording
- Asking “What did you hear”
- Auditory Sandwich
- Auditory Memory
- Pausing
- Repeating/Auditory Spacing
- Hand Cue

Listening Age

- **Chronological Age**
  - The actual age of the child
- **Listening Age**
  - The age the child became amplified

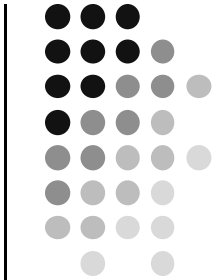
- EXAMPLE: Child is 4 years, 2 months old and was implanted with a CI at 2 years of age
  - **Listening age:**
    - **2 years, 2 months**

Seating

- Close to the teacher, but not necessarily in front row
  - Best sound reception and visual information
- Student should have a clear view of the whole class for participation in group activities & following conversations of classmates
- If one ear is better than the other
  - Better ear directed to class and teacher
- Seat the student away from noisy areas
  - Change seating arrangements for particular activities

Teagle, H., & Moore, M. (2002)

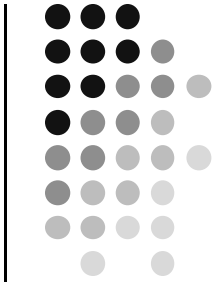
Background Noise



- Reduce the amount of noise in the classroom
  - Minimizing movement around the class
  - Encouraging the students to be quiet during important teaching times
  - Try to seat the student away from noise
    - (e.g., a noisy child or open window)
  - FM system
  - Arrange for tennis balls on chair legs

Teagle, H., & Moore, M. (2002)

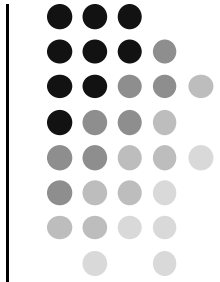
Classroom Acoustics



- Very important to the success of a hard-of-hearing (HOH) child:
  - Classroom amplification
  - Visual supplements
  - Background noise
  - Acoustic tiles
  - Carpet
  - Window treatments

Teagle, H., & Moore, M. (2002)

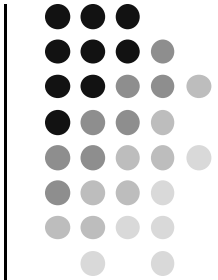
Classroom Amplification



- FM
- Consult educational audiologist for best assistive listening devices to be added to the individualized plan for each student

Teagle, H., & Moore, M. (2002)

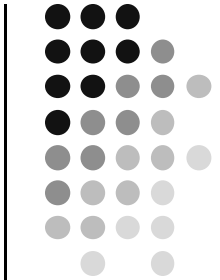
Visual Supplements



- Try to remain in one area while talking
- Don’t talk while your back is turned to the child
  - Blackboard
- Use as many visual aids as possible
- When reading aloud, try not to let the book cover your face

Teagle, H., & Moore, M. (2002)

Troubleshooting

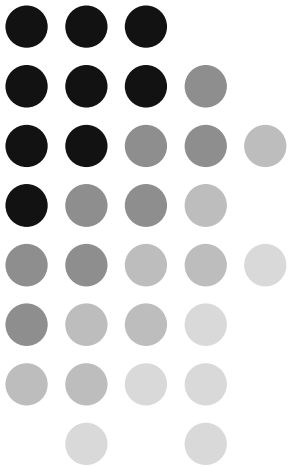


- Check the equipment!
- Know how to train parents/staff:
  - Change batteries
  - Listen to hearing aids or CI with microphone
  - Turn off and on
  - Maneuver through different programs and settings

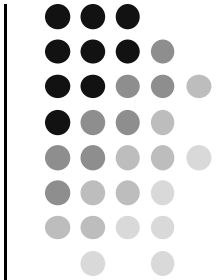
Each manufacturer has free individual resources for equipment management

Teagle, H., & Moore, M. (2002)

LING SIX SOUND CHECK



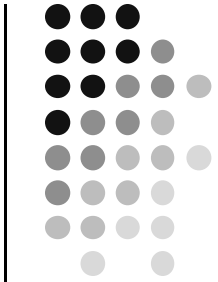
Who Is Daniel Ling Ph.D.?



- Pioneer in teaching children with hearing loss to speak

- Developed hierarchical phonetic and phonologic methods for speech production based on breath and vocalization, voice patterns, vowels, and diphthongs, consonants by manner, place, voicing, and blends
- Sources: *Speech & the Hearing-Impaired Child-2nd Ed.*, (2002); *Foundations of Spoken Language for Hearing-Impaired Children* (1989)
- Available at www.agbell.org

What Is The Ling Six Sound Check?



- A behavioral listening check to assess a cochlear implant's effectiveness
  - Uses: "mm", "ah", "ee", "oo", "sh", "s"
- Indicates a child's ability to detect sounds
- Includes the frequency range of all phonemes within the speech spectrum

Dave Sindrey, M.Cl.Sc. Cert. AVT
Hearing Journey

Sounds

- “oo”- Ghost or Train
- “ah” – Airplane
- “ee”- Mouse or Slide
- “mm”- Ice cream
- “sh”- Baby
- “ss”- Snake

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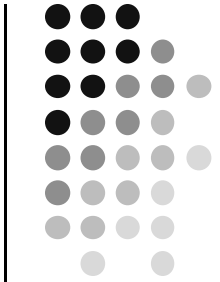
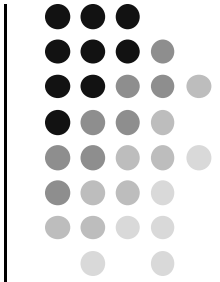
Hearing Journey

Ling Six Sound Test



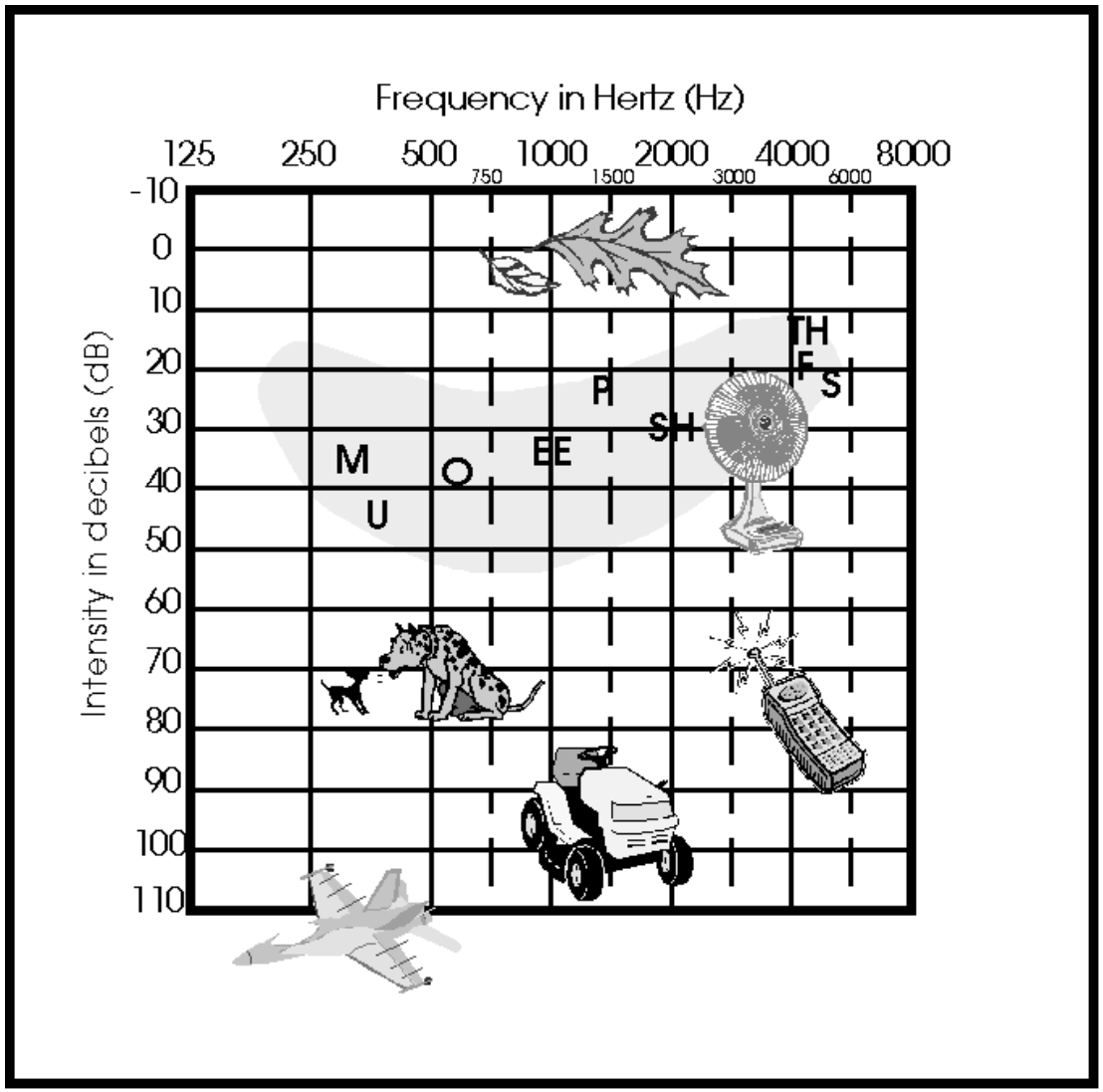
- Auditory only task
- Can be used for all ages
- Watch responses for young listeners
- Work on conditioned responses
- Consider obtaining individual ear information and responses with the different amplification systems

Administering The Ling 6 Sound Test



- Determine a baseline
- Be sure to present the sounds with the same duration and normal conversational intensity
- Make certain lip reading is not provided
- Vary pace of the sound presentation
- Random presentation/ Present silence
- All sounds should be presented at normal conversational level (despite increase in distance)

Ling 6 Sound Test

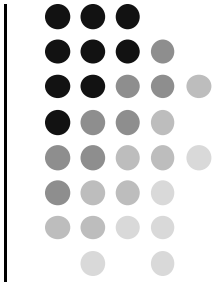


http://ajsawesomeadventure.blogspot.com/2009/05/60db.html

- The Ling 6 sounds are:

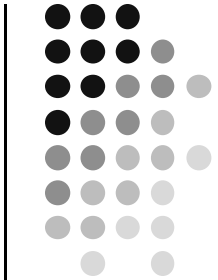
  /m/, /oo/, /ah/, /ee/, /sh/, /s/

Frequency Distribution



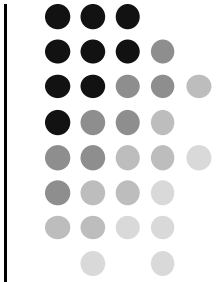
- “oo” and “mm” = Lowest frequencies
- “ah” = Mid frequency
- “ee” = Low & High frequencies
- “sh” = Higher frequency
- “s” = Highest frequency
- Silence

Perform A Daily Check



- Sounds must first be detected before the brain can be stimulated for higher auditory tasks
  - Helps to monitor if hearing aid or cochlear implant malfunctions
  - Helps to monitor any changes in the child's hearing level

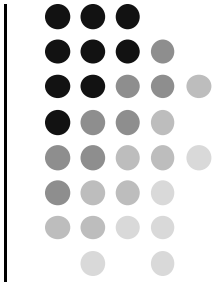
Bilateral Amplification



- Test:
  1. BOTH
  2. RIGHT only, remove left
  3. LEFT only, remove right

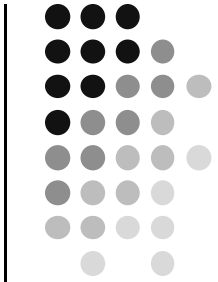
Provides great information about hearing and identifies if one CI or HA is failing.

Acoustic Screen



- Do not use regular fabric
- Can be commercially ordered
- Use speaker grill cloth (covers stereo speakers)
- Needs to transmit sound waves without obstruction
- Use hand cue if screen not available—must place hand properly without distorting signal

Acoustic Screen



- Hold approximately 4 inches from face
- Cover the entire face
  - Eliminates the ability to read facial features
- Do not drop screen after talking

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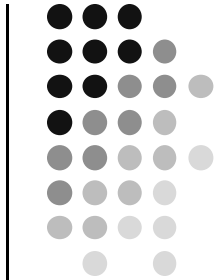
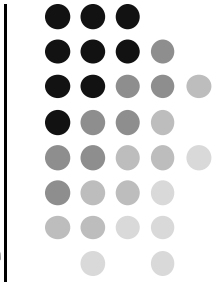
Hearing Journey

Proper Hand Placement



- Do not block your mouth
  - May cause distortion and obstruction of the signal
- Keep your hand at an angle over your mouth
  - Prevent lip reading
- Reminder- Do not drop hand between sounds because it cues the child

Distance:
Helping To Establish A Baseline



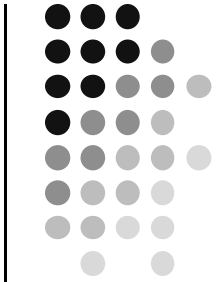
- Know the distance
- How far away?
- Does it change over time?
- Depends on hearing loss
- Hearing for that day
- Ambient room noise should be eliminated

Example Recording Chart:

Child's name:
Clinician:
Date:
Device:
Ear: Right Left Both

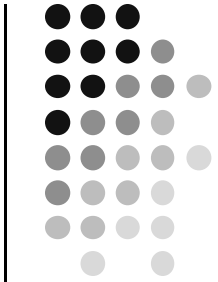
	"mmm"	"eee"	"ahh"	"ooo"	"shh"	"sss"
3 feet						
6 feet						
9 feet						
12 feet						
15 feet						
18 feet						

What Does All Of This Mean?



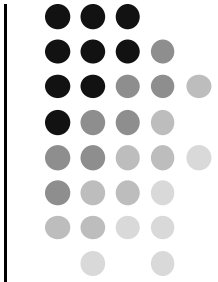
- If you have established a good baseline, and then one day the child does not respond correctly or as expected…
  - RED FLAG
    - Hearing may have changed
    - Equipment may require adjusting
    - Call the managing Audiologist

What To Do When There Is A Change..



- Basic equipment check
- Consult parent
- Consult Audiologist

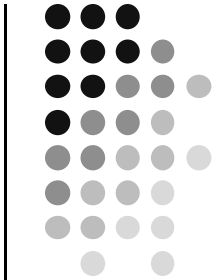
An Early Listener…



Sound Check Steps

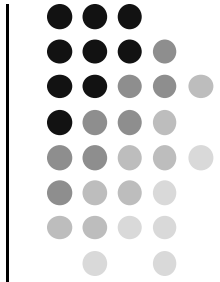
Tools For Schools
Advanced Bionics

Step One



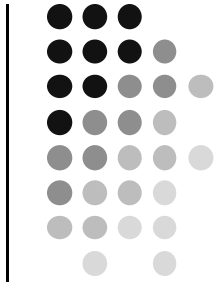
- For a very young child, you will need to teach detection through behavioral responses
- Have the child stack rings or drop toy in bucket to indicate detection of sound
- Present sounds at least 3 times each in random order
  - Remember
    - Pause intermittently
    - Cover all visual cues

Step Two



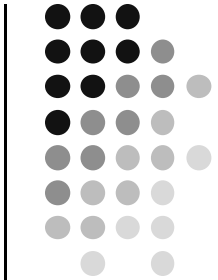
- For young clients, use real objects to represent each of the Ling Sounds
- Use pictures on cards to represent sounds (ghost, airplane, snake)

Step Three



- While giving the child a quiet distraction, provide a long baseline of silence
- Then present one of the Ling sounds through audition alone, no toys

Step Four

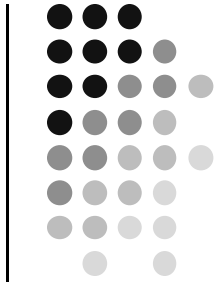


- If the child looks, repeat the sound
- Do not show the object
- When you have attention, first through listening, reinforce the attention by showing the corresponding toy
- Then, repeat the sound again
- Provide wait time so that the child can process the sound-provide immediate feedback

Step Five

- If the child is able to detect the sounds, then progress to an identification task by having the child to point to the correct picture
- The goal is to have the child repeat the Ling sounds
- Completed in several minutes

A Late Listener…



Sound Check Steps

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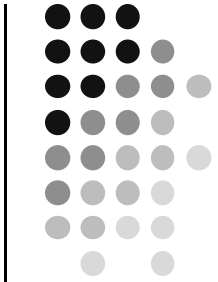
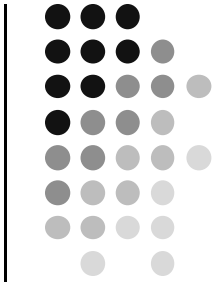
Step One



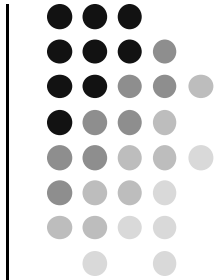
- Position the listener 3 – 6 feet from you
- Ask him/her to “listen to their sounds”

Step Two



- If this is the first time, demonstrate to the child what is expected to do
  - Ex. Raise hand, repeat, drop a toy, etc.

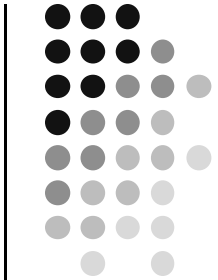
Step Three



- Using a normal conversational level, present each of the sounds through listening only

- Block the child from seeing cues with hoop, hand cue, or positioning

Step Four

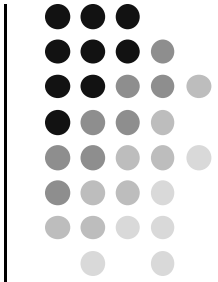


- Occasionally say nothing while doing the test
- The listener needs to know that sometimes there is no sound
- Use a random order so there is no evident pattern

Step Five

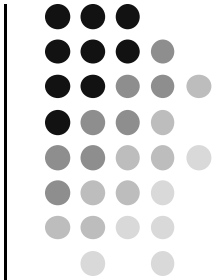
- After a few seconds, say another sound
- Present the corresponding toy, the same way
- Present all of the Ling sounds
- If attention fades or is poor, change tasks, and try again

Learn To Listen Sounds



- Facilitates listening to sounds
  - Sound-object association
- Encourages the child to attend to sounds
- Facilitates the recognition that sounds are different
- Helps the child understand that different sounds have different meaning

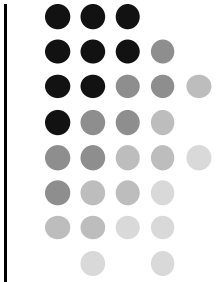
Learn To Listen Sounds



- “Hearing comes first”
  - Always present sound before the toy
- **Transportation Sounds**
  - aaaah(airplane) basic vowel
  - brrrrrr(car),
  - p-p-p-p-p(boat),
  - ch-ch-ch-ch(train)
- Develop listening for some high frequency sounds

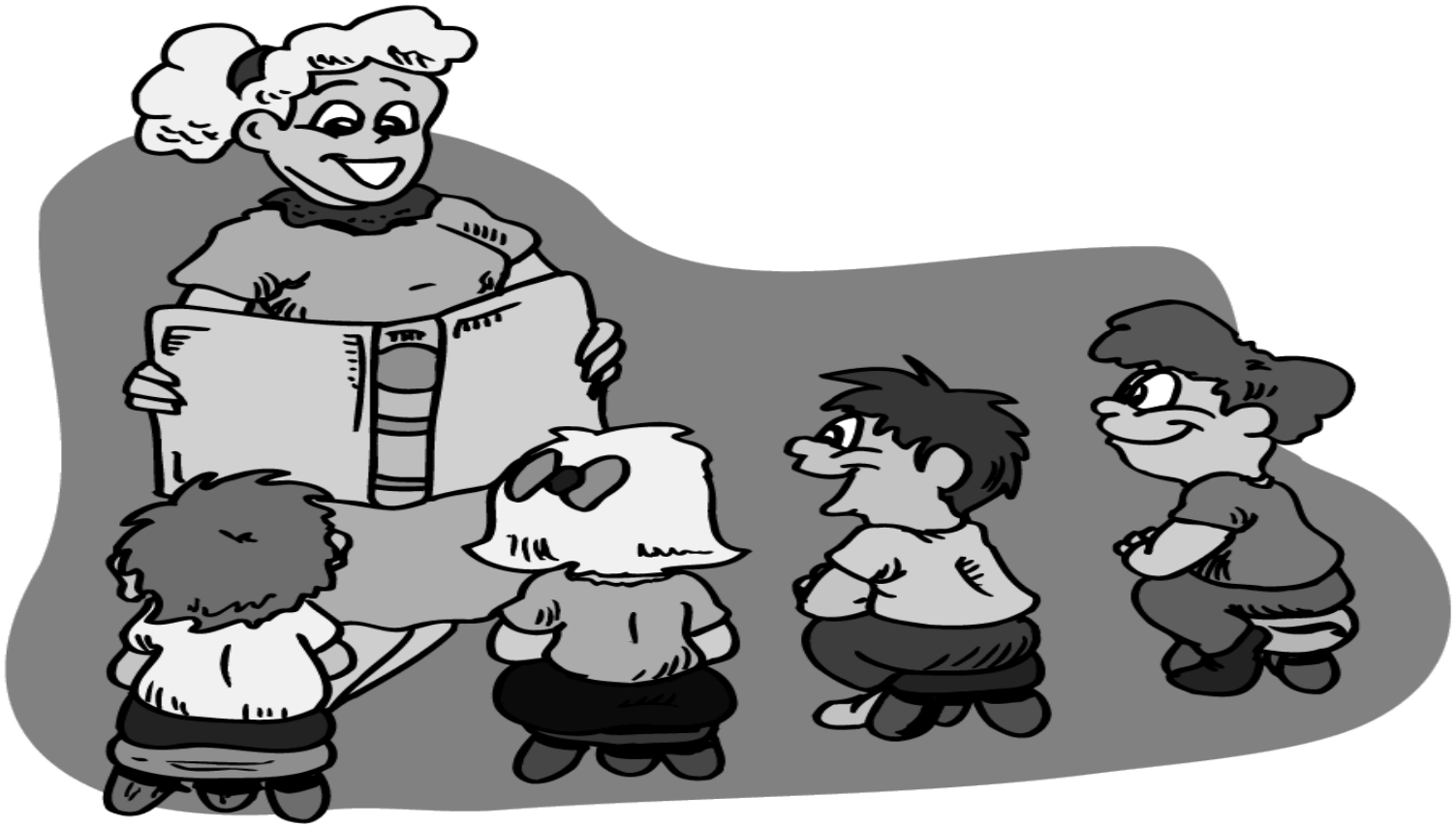
http://www.listen-up.org

Learn To Listen Sounds

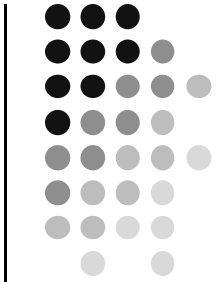


- **Animal Sounds**
  - mooo(cow) vowel with initial consonant /m/
  - ssss(snake), quack quack quack(duck)
  - Oink oink(pig) ba-a-a-a(sheep)

Learn To Listen Sounds Interactive Activities



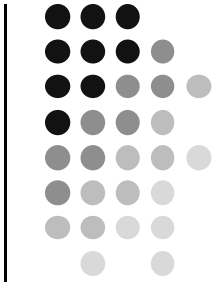
General Hierarchy Of Sounds



- Detection
- Discrimination
- Identification
- Comprehension

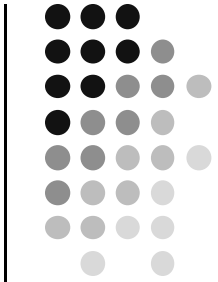
Donald M. Goldberg, PhD, CCC-SLP/A, FAAA, Cert AVT

DETECTION



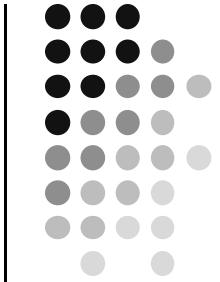
- Recognizes the presence or absence of sound
    - Is there a sound or not?

Detection
Interactive Activities



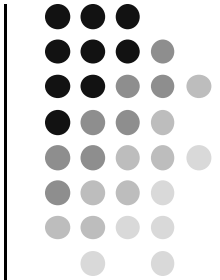
- Ling 6
- Tin cans
- Environmental sounds (knocks, alarm clocks)
- Wake up game
- Musical toys
  - (Musical chairs, onset-offset, puppet)

Young Child (Interactive)



- Wake up Game
- Hold your finger and say “shh”
- Put your head down and pretend to sleep.
- Say “WAKE UP!”
- Wake up startled
- Switch roles
- Watch for consistent responses

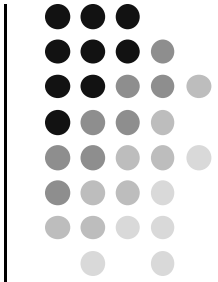
Adult-Older Child (Interactive)



- Shakers
  - One with sounds (presence)
  - One without sounds (absence)

- Different conditions
  - Under table, etc.
  - See if child can localize

DISCRIMINATE



- Determine if two or more sounds are the SAME or DIFFERENT

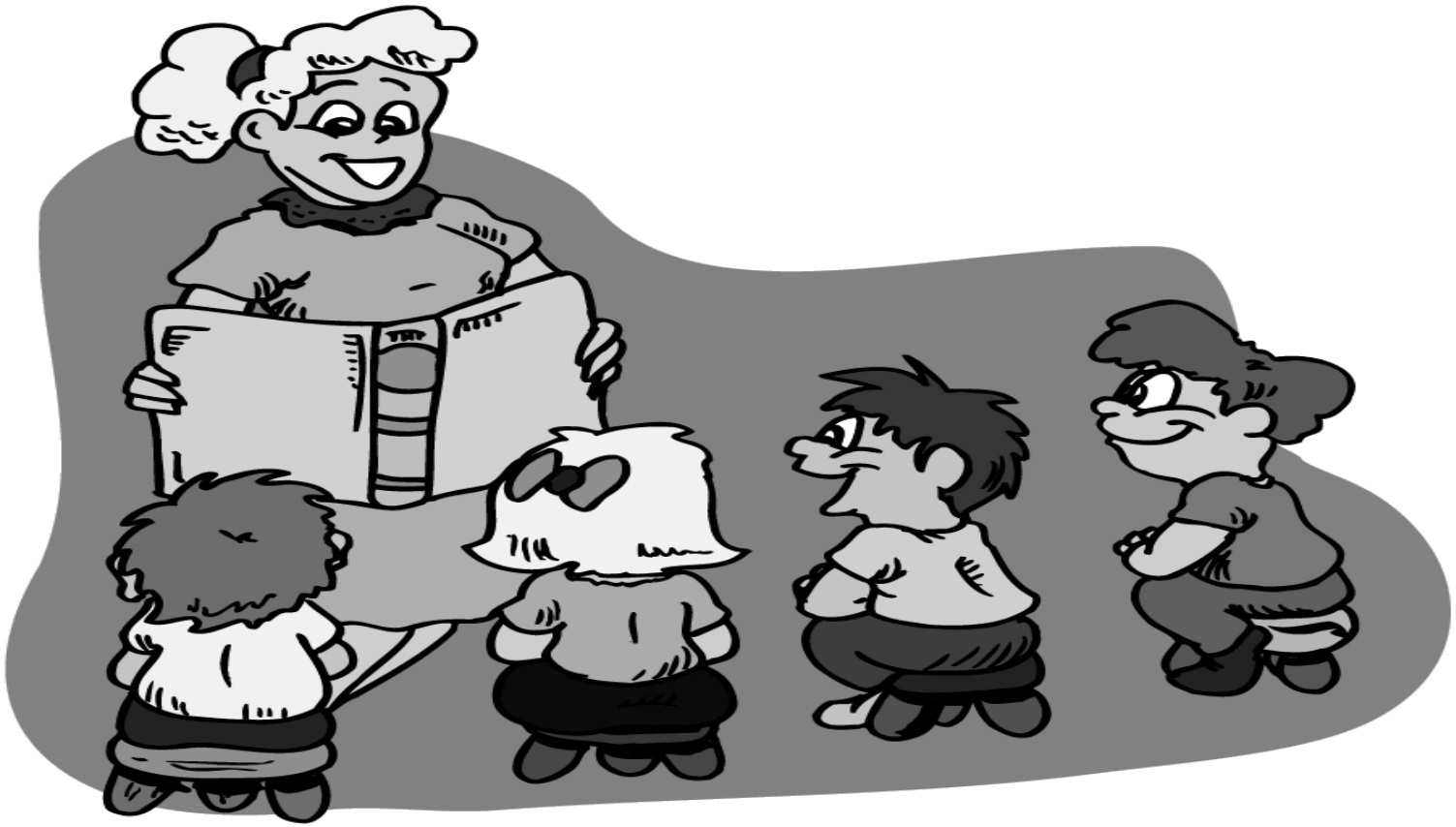
  - Can the child hear if there is a difference between "sh" or "mm"?

IDENTIFICATION

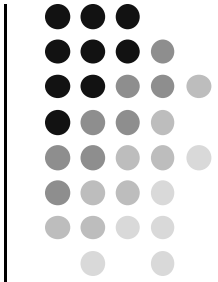
- Reproduce a sound
- Point to a picture of a sound they heard

Can they specifically identify the sound?

Identification Interactive Activities

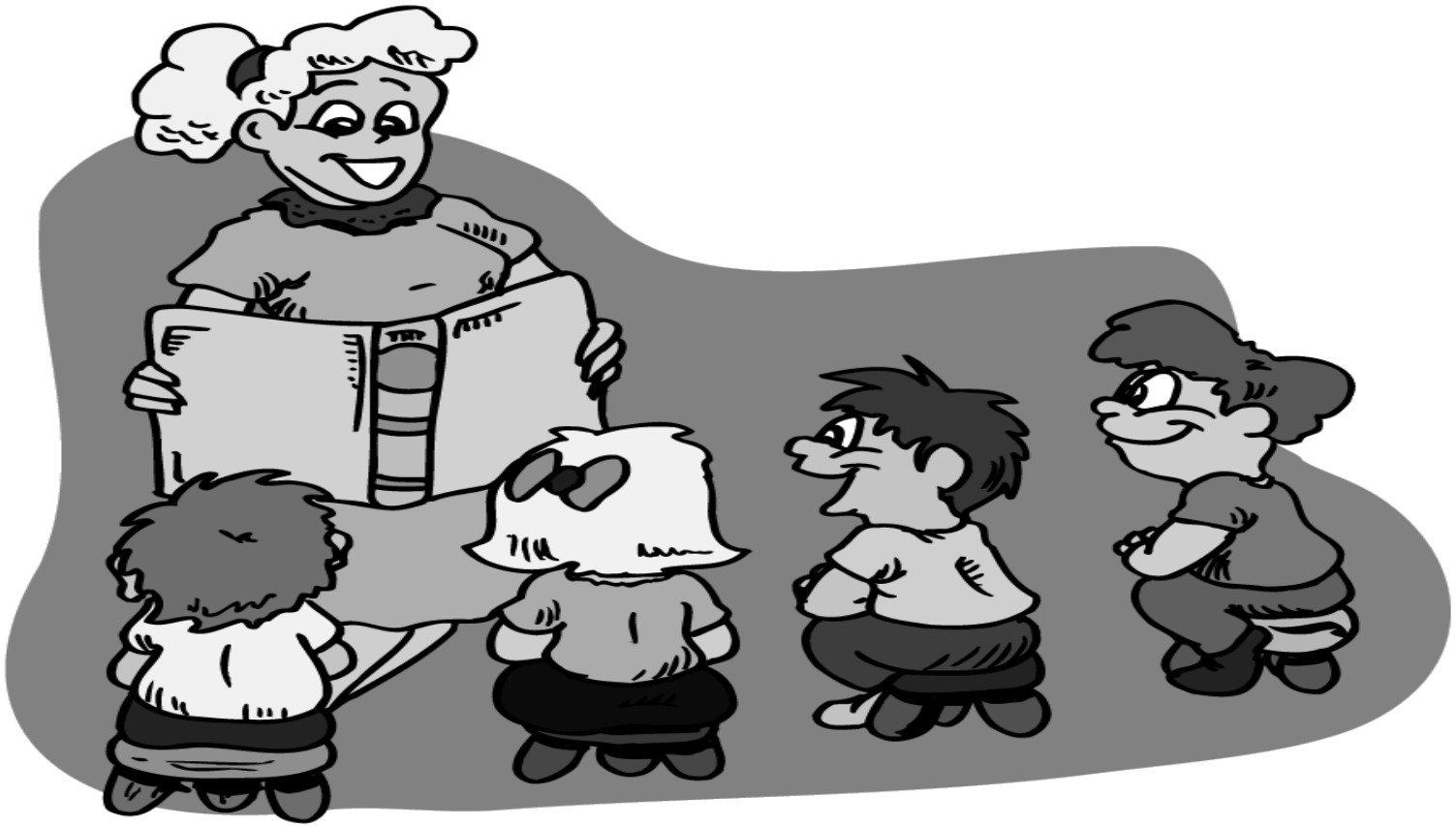


COMPREHENSION

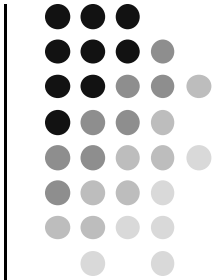


- Is there meaning to this sound?
- To synthesize the global meaning of language
- Sound is heard deliberately or incidentally
- Able to attach meaning to known information in a variety of situations

Comprehension Interactive Activity



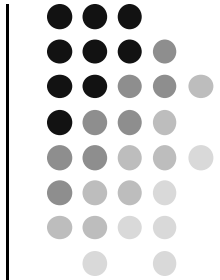
General Auditory Activity Ideas



- Following directions
- Barrier games
- Simon says
- Descriptors
- Retelling critical elements
- Songs, rhymes, and finger plays
- Sequencing

TIP

- Children with HEARING AIDS
  - May have difficulty hearing high frequency sounds beyond 9 feet
    - “ s” “sh”
    - Plurals and possessives may be difficult to detect and use



We would like to thank all of the professionals who have shared their passion and knowledge with us to make this presentation possible!

THANK YOU!!

References

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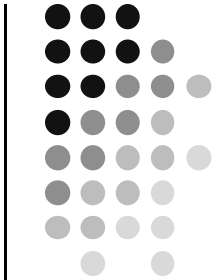
References

- **Denise Wray, Ph.D., CCC-SLP, Cert. AVT** earned a master's degree in Speech-Language Pathology and a doctorate in Elementary Education from the University of Akron where she is currently a Professor of Speech-Language Pathology and director of its Auditory—Verbal Clinic. Her research interests include language and literacy development of students with hearing loss and issues related to their inclusion into the regular classroom. She is currently administrator of the hearing grant.

- **Carol Flexer, Ph.D., CCC/A, LSLS Cert. AVT** was at The University of Akron for 25 years as a Distinguished Professor of Audiology in the School of Speech-Language Pathology and Audiology. Special areas of expertise include pediatric and educational audiology. She continues to lecture extensively nationally and internationally and has authored more than 150 publications. Dr. Flexer is a Certified Auditory-Verbal Therapist (LSLS Cert. AVT) and a licensed audiologist. For her research and advocacy for children with hearing loss, Dr. Flexer has received two prestigious awards from The Alexander Graham Bell Association for the Deaf and Hard of Hearing: the *Volta Award*, and *Professional of the Year Award for 2007/2008*.

References



- **Donald M. Goldberg, PhD, CCC-SLP/A, FAAA, Cert AVT**, is currently co-director of the Hearing Implant Program (HIP) at the Head and Neck Institute of the Cleveland Clinic Foundation. Dr. Goldberg is a world leader in the assessment of infants, toddlers, preschoolers, school-age children and adult patients who are deaf or hard of hearing, and the auditory-based (re)habilitation of patients who are recipients of unilateral or bilateral (both simultaneous and sequential) cochlear implants. Dr. Goldberg is the immediate past-president of the A.G Bell Association for the Deaf and Hard of Hearing's Academy for Listening and Spoken Language from 2008-2010.

- **Heather Rose MA, SLP-CCC, Cert. AVT** is a Clinical Instructor of Speech-Language Pathology and a Certified Auditory-Verbal Therapist at Utah State University. She has also served as a practicum supervisor for the Auditory-Verbal Program at the University of Akron (UA) as well as a consultant for UA's Auditory Options Project. Ms. Rose has maintained a private practice for 17 years working exclusively with children with hearing loss, especially those with cochlear implants. She is nationally recognized for her work with young children with hearing loss and their families.