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**Getting Started with Auditory Skills**  
HOPE Specialists: Ashley S. Garber, MS CCC-SLP and Mary Ellen Nevins, Ed.D.



## Introduction

Cochlear America's Commitment to Educational Outreach



## Our Presenters

Ashley S. Garber, MS CCC-SLP

- Private practitioner specializing in aural habilitation services
- Over 10 years of experience with children and adults with hearing-impairment and cochlear implants in a variety of settings



Mary Ellen Nevins, Ed.D.

- Experienced teacher and teacher educator of deaf children
- Working as an educational specialist in the field of cochlear implants since 1987
- Co-author of three texts on children and cochlear implants



## Agenda

- A model for observing auditory development
  - Auditory Function
  - Language Input
  - Situational Context
- How to get started
- Putting it all together
- Pages from our case files
- Resources and discussion



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## One Model of Auditory Skill Development

- A number of professionals have written about auditory skill development and present slightly different versions of basic auditory function
- From our combined experiences we have found utility in looking at 3 parameters
  - Auditory Functions
  - Meaningful Input
  - Situational Context



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## Auditory Functions

- Detecting – demonstrating the awareness of a particular sound or sounds
- Discriminating – making judgments as to the similarity or differences between 2 sounds
- Patterning – recognizing the features of rate, duration, intensity and pitch that create rhythms in sounds and speech
- Identifying – specifically indicating what has been heard through a motor or speech response
- Comprehending – demonstrating understanding of particular input through response or generation of new ideas



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## Building the Model



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## Meaningful Input

- Sounds
- Words
- Phrases
- Sentences
- Conversation

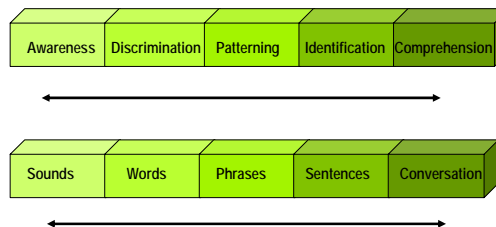


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## Building the Model



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## Situational Contexts

- Structured Listening Tasks – specific activity designed to practice auditory skills
  - closed set tasks – all choices are available
  - bridge set – topics or categories create a larger, cognitive set
  - open set – possibilities for stimuli are endless
- Routine Activities – recurring events associated with predictable language
- Naturalistic Exchanges – goal oriented, real world conversations where ability to listen transcends environment or activity

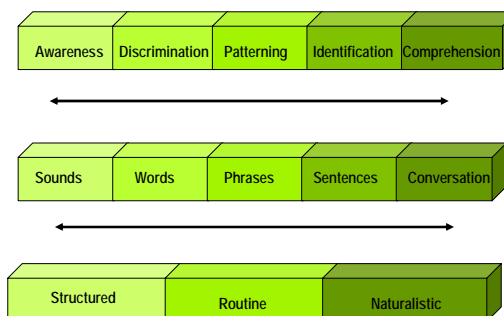


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## Building the Model



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## Building the Model

- Emphasis on auditory function should not override best practice principles for language development that call for simultaneous top-down and bottom-up approaches
  - In other words – auditory function will develop from most basic (detecting) to most advanced (comprehending)
- BUT**
- The input used for this development should be varied to include all elements (sounds to conversation and conversation to sound)



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## Building the Model

- Common practice follows the notion that auditory functions develop *first* in structured tasks and *then* move to naturalistic contexts
- HOWEVER**
- The power of the cochlear implant makes auditory skill development possible in more naturalistic environments

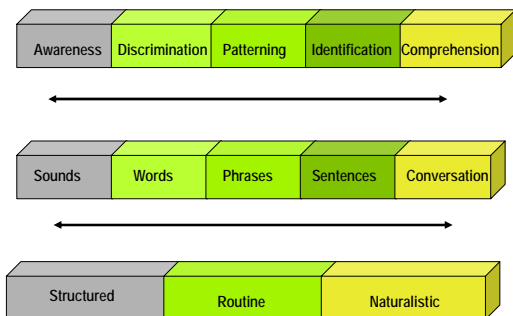


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Model emphasis



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## How to Get Started



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## Identify Current Auditory Skill Level

- Communicate with Cochlear Implant Center
  - Ask for results of speech perception testing
- Perform functional auditory assessments
  - Use auditory instruments (e.g. SPICE Curriculum, APT-HI)
  - Consider other auditory/language assessment protocols such CASLLS



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## Note Language Abilities

- Administer standardized tests
- Analyze a language sample
- Identify acquired, emerging and developing language competencies



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## Insure Relevance

- Consider that children enter the implant process with different world experiences and cultural backgrounds
- Refer to themes used in the classroom
- Acknowledge the demands of a variety of communication contexts



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## Putting it All Together

- Start with a typical lesson plan
- Assess whether your plan considers auditory skill, language level and situational contexts as variable elements
- As needed these elements can be manipulated to design appropriate but challenging therapeutic strategies
- Intent is to maintain acquired skills, practice emerging skills and develop new skills in relevant and motivating activities



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## Shared Responsibility

All school based professionals have a role in the development of auditory functions for children with cochlear implants.

While listening and talking should be embedded in all aspects of the child's school program, it may be beneficial for *certain* professionals to target *specific* skills in a *particular* context.

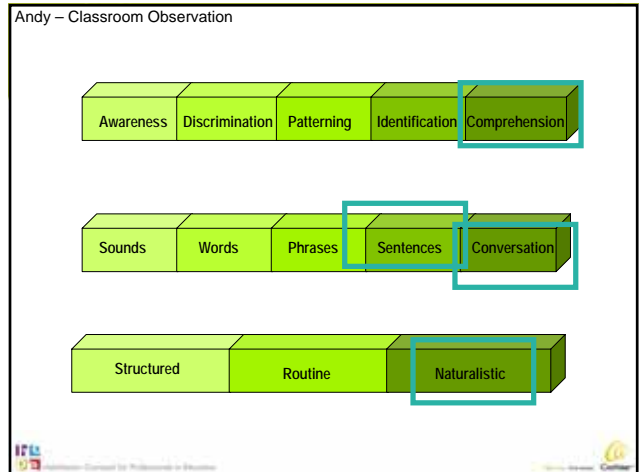
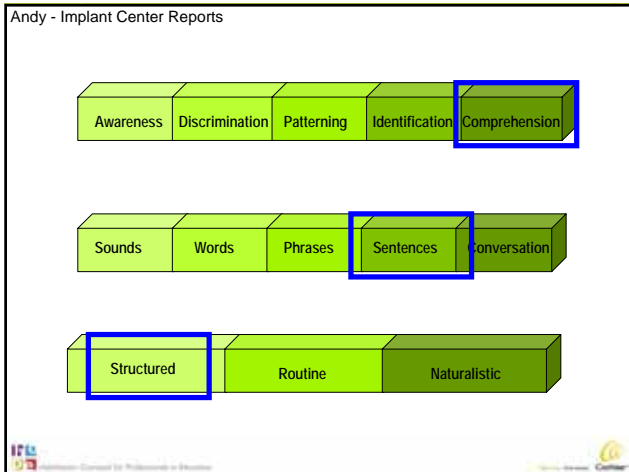
## Pages From Our Case Files

## Andy

- 4 year old child using an implant for 3 years
- Received amplification soon after identification at birth
- Typically developing youngster with age appropriate cognitive and motor milestones
- Participating in preschool program with hearing children

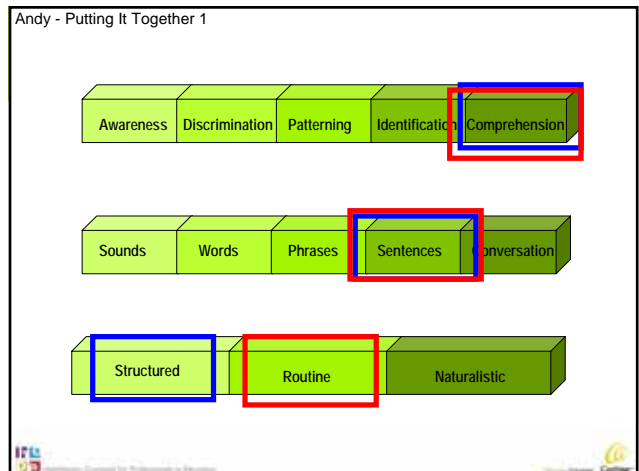
## Getting Started with Andy

- Auditory Function:
  - Structured: implant center reports open set comprehension of questions
  - Natural: able to follow multi-element directions and answer questions about stories
- Language Level:
  - Structured: standard scores WNL on vocabulary and language measures
  - Natural: typically communicating in 6-8 word utterances

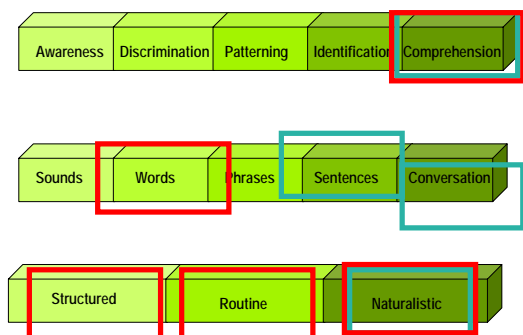


## Putting It All Together - Andy

- Introduce listening in noise in familiar contexts (e.g. listening to favorite stories)
- Continue vocabulary accrual through auditory only presentation with manipulation of contexts as needed
- Present phoneme contrasts at the word and sentence levels
- Don't overlook developing precision in articulation and overall intelligibility



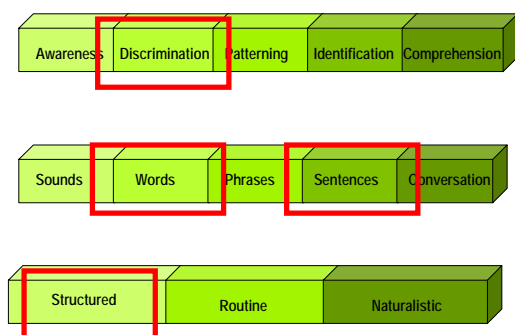
Andy - Put It Together 2



## Andy – Building Vocabulary

- Within a familiar routine
  - Read *Sheep in a Jeep* together in the classroom and at home
- Within a natural setting
  - Explore the house looking for things that are “steep”, “deep”, “goosey”, in a “heap”
  - Think of things that might make you “weep”
  - Count “jeeps” seen on a car ride
- Within a structured setting
  - Play Concentration with illustrations showing targeted vocabulary

Andy - Put It Together 3



## Andy – Contrast Phonemes

- Pull out minimal pairs contrasts for listening practice during retelling
  - “weep” vs. “heap”
  - “beep” vs. “deep”
  - “sheep” vs. “cheap”
- Run to the front of the room to grab the picture that shows “The sheep in a *heap*”, “The sheep in a *jeep*”



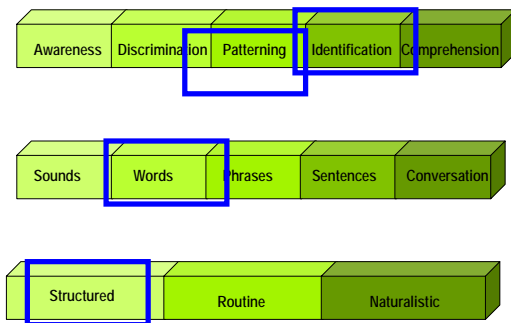
## Brittany

- 8 year old child using an implant for 2 years
- Prior to implantation, she was a steady language learner relying on sign and speech reading to supplement the information she received from her hearing aids
- Currently in her first year in an auditory oral classroom

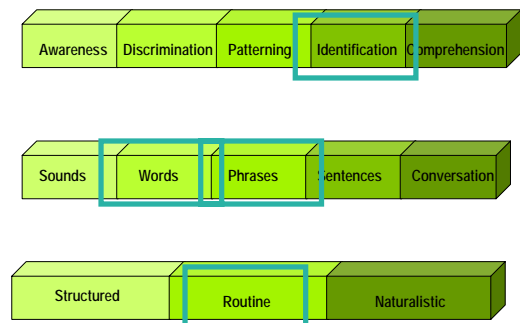
## Getting Started with Brittany

- Auditory Function
  - Structured: Implant Center reports patterning in words and identification of words with vowel contrasts but difficulty with identification of words presented in minimal pairs
  - Natural: Identifying key words and phrases in routine activities and comprehending highly familiar questions in open set in familiar contexts
- Language:
  - Structured: Inconsistently using complex structures
  - Natural: Stringing together 6+ content words but without the syntactic elements that are necessary to create complete and intact utterances

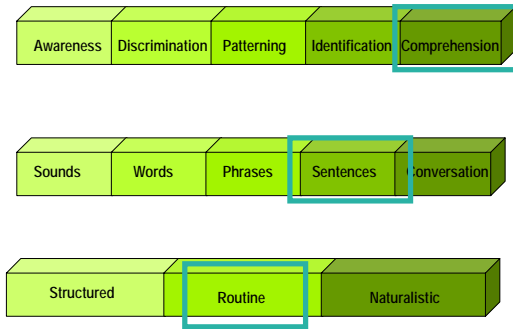
Brittany – Implant Center Reports



Brittany – Classroom Observation



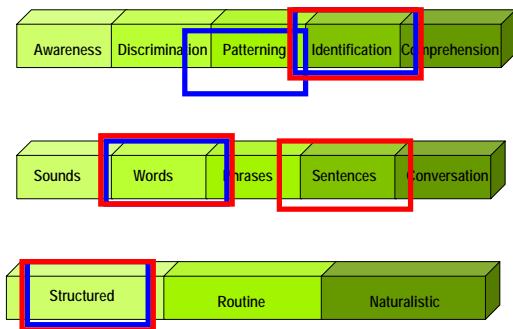
Brittany – Classroom Observation



## Putting it all Together

- Present large closed set word identification tasks with consonant differences
- Embed word identification tasks into sentences
- Encourage closed set sentence identification using familiar materials
- Build open set comprehension of familiar sentences in novel contexts

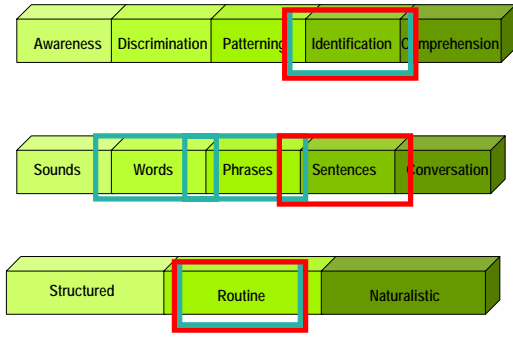
Brittany - Putting It Together 1



## Brittany – Closed Set Word Identification

- In the unit on the solar system, the teacher creates listening opportunities to target particular goals:
  - Identify planet names from the set of all planets
  - Listen to known prompts:
    - “This is the largest planet.”/“This is the smallest planet.”
    - “This planet is closest to the sun.”/“This planet is furthest from the sun.”
    - “This planet has moons.”/“This planet has rings.”

Brittany - Putting It Together 2



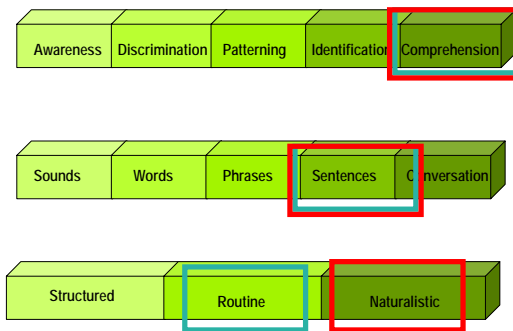
## Brittany – Sentence Identification in Routines

- The teacher has created innovative ways to call children to line up for their “specials.” Routine and predictable prompts include:

- “Girls with sneakers, line up”
- “Boys with sweatshirts, line up”
- “Girls with long hair, line up”
- “Boys with blue jeans, line up”

Note: This task can be made more challenging by varying the linguistic environment: “If you are a boy with a sweatshirt, join the line now.”

Brittany – Putting It Together 3



## Brittany- Questions

- The teacher makes it a point to ask Brittany some conversational questions throughout the day during arrival, transitions and dismissal:

- “What did you bring for lunch today?”
- “Did Nate say any new words yesterday?”
- “What will you be for Halloween?”
- “Are you doing anything special this weekend?”
- “How was the soccer game?”

## Summary

- To assess and develop auditory skills, consideration of three parameters is crucial
  - Auditory Functions
  - Meaningful Input
  - Situational Context
- Auditory functions develop hierarchically, but manipulation of input over various contexts insures integrated generalization of auditory skill
- Case studies illustrate examples of working across parameters



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## Resources

- SPICE – Speech Perception and Instructional Curriculum Evaluation available at <http://cid.edu/deaf%20home/PUBLICATIONS/test&curricula.htm>
- CASLLS – Cottage Acquisition Scales of Listening, Language and Speech available at [www.sunshinecottage.org](http://www.sunshinecottage.org)
- APT-HI – Auditory Perception Test for the Hearing Impaired available at <http://users.ilk.com/clarke/report1.htm>



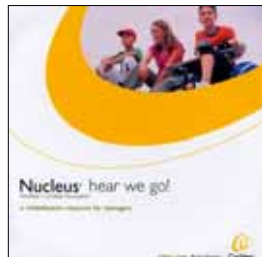
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## Cochlear Resources

- Cochlear America's *Hear We Go*
  - CD of structured listening activities for older listeners
  - Can be adapted for school aged children depending on skill level
- Relevant Online Sessions
  - HOPE Tips: Therapy Ideas for Preschoolers
  - HOPE Tips: Therapy Ideas for Elementary Aged Students
  - Teens: A Whole 'Nother World



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## Online Sessions

- Visit [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)
- Upcoming sessions:
  - Wednesday, May 16, 3-4 pm**  
*Clear speech: Applying Research Findings to the Classroom*  
Ann Bradlow, Ph.D. Department of Linguistics, Northwestern University
  - Tuesday, June 19, 2:00 pm ET**  
*How to Reach Cochlear Implantation by 12-18 Months of Age and Why You Would Want To*  
Dianne Hammes, M.A. & Jean Thomas, M.S., Carle Clinic Foundation



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## Contact Cochlear

- To register for our HOPE E-newsletter
  - [www.cochlear.com/HOPE](http://www.cochlear.com/HOPE)
- For inquiries and comments regarding HOPE programming, please contact
  - [dsorkin@cochlear.com](mailto:dsorkin@cochlear.com)
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