

**Resources and References**

*Birth to Three Years*

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**October 9th, 2015**

## Communication Milestones: The First Year

### Understanding

- Newborn Turns towards mother's voice
- 3 months Social smile
- 3-4 months Aware of strange persons and situations
- 3-4 months Excited when favorite toy is presented (e.g., increased kicking, arm waving, etc.)
- 4 months Responds to own name
- 5-6 months Responds to "no" with inflection
- 5-6 months Smiles in response to mirror
- 6-7 months Moves or looks toward family member when named (e.g., "where's daddy?")
- 6-7 months Wriggles in anticipation of play
- 8 months Responds to "come-up"
- 8-9 months Responds to "no" without inflection
- 9 months Responds to scary faces, "stranger anxiety"
- 9-10 months Follows simple commands with gesture (e.g., "come here")

### Vocal Development

- 0 to 2 months Vegetative sounds
- 3 months May imitate caregiver intonation contours
- 3 to 4 months Cooing is well established
- 4 months Vocalizations begin to be dominated by sounds produced at the front of the mouth, including raspberries and trills
- 7 to 8 months Babbling well established

### Communication

- 3-4 months May vocalize when spoken to
- 5 months Takes turns with sounds

- \_\_\_ 5-6 months      Enjoys sound-gesture such as "peek-a-boo"
  
- \_\_\_ 6 months      May produces some idiosyncratic words (e.g., "wawa" for water)
  
- \_\_\_ 9-10 months    Participates in speech routine games (e.g., "so-big," "pat-a-cake," etc.); initiates sound-gesture games
  
- \_\_\_ 10 months      Uses ritualized intentional gestures and short sound to obtain desired object
  
- \_\_\_ 11-12 months    Covers own face in "peek-a-boo"
  
- \_\_\_ 11 months      First spoken word

**Sources:** Gratier & Devouche (2011); Goldstein & Schwade (2008); Jusczyk (1992); Hedrick, Prather, & Tobin, (1984); Oller (1992); Stark (1980)

## Communication Milestones: The Second Year

### Understanding

- 12 months Uses primitive play (toy telephone, etc.)
- 12 months Responds to "give me" plus gesture.
- 12-13 months Can respond to verbal request to say "bye-bye"
- 13-14 months When asked to, will look at object (e.g., TV, ball, etc.)
- 15-16 months Carries out request to select and bring some familiar object from another room
- 17-18 months Lifts foot or points to shoe when asked, "Where are your shoes?"
- 17-19 months Uses object for the right function part of the time
- 18-20 months Representational play begins
- 22-24 months Full representational play
- 24 months Responds to "bye-bye" without gesture

### Mode of Communication

- 12-13 months Uses voice and gesture to get objects
- 14-15 months Communicates using gestures, words, and vocalizations
- 16-18 months Uses words to express wants and to communicate
- 20 months Relates experience

### Expressive Vocabulary

- 12 to 13 months 2 to 3 words
- 14 to 15 months 4 to 6 words
- 16 to 17 months 7 to 20 words
- 20 to 21 months 50 words
- 24 months 200-300 words

### Syntax

- 20-22 months Combines words
- 24 months Uses two and three word combinations



## Communication Milestones: The Third Year

### Semantics

#### *Understanding*

30 months            Understands 400 words

#### *Expression*

24 months            Uses 200-300 words

### Syntax

\_\_ 24 months            Uses two and three word combinations

\_\_ 36 months            Speaks in short, telegraphic sentences

### *Mean Length of Utterances*

\_\_ 24 months            MLU = 1.92

\_\_ 30 months            MLU = 2.54

\_\_ 36 months            MLU = 3.16

### Morphology

#### *Understanding*

\_\_ 30-36 months            Understands *on, under, up, down, over here, and, jump*

\_\_ 30-36 months            Interested in *why* and *how*

\_\_ 48-54 months            Understands dependent clauses with *if, because, when, and why*

#### *Expression*

\_\_ 24 months            Present progressive

\_\_ 30 months            Prepositions *in, on*

Regular plural

\_\_ 32 months            Uses questions

\_\_ 36 months      Irregular Past  
                         Possessives  
                         Uncontracted Copula  
                         Articles  
                         Regular Past

#### Speech Production

\_\_ 24 months      Speech is 25% to 50% intelligible  
\_\_ < 36 months      Stops, nasals, and glides acquired  
\_\_ 36 months      Speech is 75% intelligible  
\_\_ 36 months      Vowel development is largely complete  
\_\_ 36 months      [tw kw] produced correctly

**Sources:** Brown (1973); Smit, Hand, Frelinger, Bernthal, & Byrd (1990); Weiss (1982); McLeod, van Doorn, & Reed, (2001a); McLeod, (2002); Pollack & Berni (2003); Selby, Robb, & Gil

## **Policies**

### **Neonatal Association**

<http://neonataltherapists.com/>

### **State Baby Fact Sheets**

<http://www.zerotothree.org/public-policy/state-community-policy/infant-and-toddler-state-fact-sheets.html>

### **ASHA Policies**

[Roles and Responsibilities of Speech-Language Pathologists in Early Intervention: Position Statement](#) (2008)

[Roles and Responsibilities of Speech-Language Pathologists in Early Intervention: Technical Report](#) (2008)

[Roles and Responsibilities of Speech-Language Pathologists in Early Intervention: Guidelines](#) (2008)

[Core Knowledge and Skills in Early Intervention Speech-Language Pathology Practice](#) (2008)

Learning Disabilities and Young Children: Identification and Intervention (a [National Joint Committee on Learning Disabilities](#) document)

[Neonatal Intensive Care Unit \(NICU\)](#)

[Supplement to the JCIH 2007 Position Statement: Principles and Guidelines for Early Intervention Following Confirmation That a Child Is Deaf or Hard of Hearing](#)

### **Federal Policies**

U.S. Department of Education, [National Institute on Disability and Rehabilitation Research](#)

[National Dissemination Center for Children with Disabilities](#)

[National Early Childhood Technical Assistance Center](#)

[National Association for the Education of Young Children](#)



## Senses, Brain, and Environment Questions

**Senses:** Are the senses bringing information to the brain?

- How is the child's hearing?
- How is the child's sight?
- Does the child seem easily startled by input, sprints, or appears relatively unaffected by environment?
- Is the child's coordination of movements appropriate for age?

**Learning:** How is the brain processing information?

- How quickly is the child able to *learn* new things?
- How are the child's attention abilities?
- How observant is the child?
- What are the child's learning strengths and challenges?

**Bonding:** Is the family bonded with the child?

- What challenges does the family face that might affect bonding? Medical? Financial? Work? Mental health? Physical health?
- Are there ways to increase bonding between the child and the family?
- Does the family recognize the child's communications?
- Are there ways to improve the child's communication with the family? Sign? Gestures? Eye gaze?

**Speech Input:** Is the child receiving enough language input to promote learning?

- Is the speech to the child sufficiently appropriate to promote learning?
- Are there times set aside during the day for the child and the family to interact?
- Is the family aware of what the child likes? What makes him/her upset?
- What things do the child and family do together?
- What things does the family enjoy doing with the child? Don't enjoy doing?
- Does the child interact with the family on a regular basis?
- What are the barriers to appropriate speech? Time? Failure to bond? Mental health? Finances?

**Social Context:** What is the child's social context?

- What are the family's daily routines with the child?
- What is a typical day for the child?
- Who does the child interact with during daily routines?
- Which are the most positive routines for the family? Which routines are stressful?
- Can routines be modified to improve opportunities for learning?

## Activities

### Internet Sources

Vroom

<http://www.joinvroom.org/people-and-partners>

Zero to Three

<http://www.zerotothree.org/about-us/areas-of-expertise/free-parent-brochures-and-guides/>

[Baby Brain Map](#)

### Infants

**Black and White Mobile.** Set a black and white mobile above an infant's crib for the child to watch. Talk with the infant about what is being seen while the mobile goes round.

**Small rattle.** Give an infant a small rattle to shake, and talk about the infant is doing while playing.

**Music box.** Wind a music box, and listen to the music with the infant. When the music stops, wait a few moments, wind it up, and play it again. Near 4 months, when the music stops, wait a moment for the infant to display some interest in hearing it again, and then wind the music box to play again.

**Hand held or Noise-making toy.** Give an infant a hand-held or noise-making toy to explore. Talk about what the infant is doing.

**Busy Box.** Set a simple busy box in front of an infant to hit and bang. Guide the infant's hands if need be to help explore the busy box.

**Favorite Toys.** Near 3 to 4 months, make a game of showing a child a favorite toy to elicit excitement, maybe through increased kicking and arm waving.

**Taking Turns with Sounds.** Near 5 months play games in which a child vocalizes, you vocalize, the child vocalizes, and then you vocalize.

**Peek-a-Boo.** Near 5 to 6 months play peek-a-boo games with the baby, maybe with you taking both the child turn and your turn. That is, put your hands over your eyes, and then lower them, saying *peek-a-boo*. Next, take the infant's hands, place them over the infant's eyes, and then lower the hands, saying *peek-a-boo*. Repeat.

**Mirror.** Near 5 to 6 months set a mirror in front of an infant. Encourage the infant to pat the mirror image and talk about what the infant is doing.

**Bubbles.** Blow bubbles, talking about the bubbles as they pop. When the bubbles are all gone, wait till the infant either looks toward you or otherwise indicates a desire for more bubbles (maybe through arm waving or rocking back and forth) and then blow more bubbles.

**Popup Toys.** Turn the crank on a popup toy until it opens and a figure pops up. Put the figure down in the box again and wait till the infant either looks toward you or otherwise indicates a desire for the action to occur again (maybe through arm waving or rocking back and forth) and then start turning the crank again.

**Manipulable toys.** Offer an infant manipulable toys (such as a drum or toy cars) to bang, mouth, and play with. While the infant plays, talk in single words and short, simple sentences about what the child is doing.

**Anticipation of Play.** Near 6 to 7 months make a game of beginning a favorite play activity to elicit wriggling in anticipation of play.

**Family Names.** Near 6 to 7 months helping an infant associate a person with a name, asking, *Where is \_\_\_?* The person being named should be a close family member.

**Simple Directions.** Near 9 to 10 months begin practicing simple instructions with gestures, such as *Come here.*

**Speech Routine Games.** Near 9 to 10 months introduce more sound-gesture games such as so-big and pat-a-cake.

**Peek-a-Boo.** Near 11 to 12 months have the infant play an increasingly active part in sound gesture games, such as covering their own face in peek-a-boo.

## **Toddlers**

**Wagon or Tricycle.** Let a toddler ride a wagon or tricycle. While playing, talk in single words and short, simple sentences about what the child is doing.

**Picture Book.** Begin to encourage a toddler to look at simple picture books with an adult. Have the adult either read the story or name persons and actions in the story.

**Mr. and Mrs. Potato Head.** Set out a Mr. and Mrs. Potato Head for a toddler to put together and take apart. While playing, talk in single words and short, simple sentences about what the child is doing.

**Toy Telephone.** Set out play telephone, answer the phone, and then pass the phone to a toddler, saying something like, *The call is for you.*

**Request.** Place a toy up high and out of reach, and encourage the child to use your words to request you to get it. Near 12 to 13 months, expect a toddler to use voice and gestures to communicate. Near 14 to 15 months, expect a toddler to communicate using gestures, words, and vocalizations. Near 16 to 18 months, expect a toddler to use words to communicate. Near 20 months, expect a toddler to communicate using occasional use of two word sentences. Near 24 months, expect a toddler to communicate using 2 and 3 word sentences.

**Play Dumb.** To encourage communication, when a toddler says something, pretend you do not understand. Alternately, have a puppet or stuffed animal be the one who does not understand. Try not to overdo this one so the toddler does not become frustrated.

**Familiar Objects.** Near 15 to 16 months encourage a toddler to bring familiar objects from another room.

**Picture Books.** Offer a toddler a picture book to look at with an adult. Have the adult either read the story or name persons and actions in the story.

**Blocks.** Set out building blocks for you and a toddler to play with. While playing, talk in single words and short, simple sentences about what the child is doing.

**Puzzles.** Put together big piece puzzles with the toddler. While playing, talk in single words and short, simple sentences about what the child is doing.

**Representational Play.** Near 20 months begin encouraging a toddler's play with toys such as dolls and action figures that represent real people. While playing, talk in single words and short, simple sentences about what the child is doing.

## **Preschoolers**

**Reading.** Read a picture book with a child, having the child name and describe actions in the pictures.

**Shopping.** Play “shopping” with pretend food, play money, and a cash register.

**Tea Party.** Have a tea party or make a meal using toy dishes, utensils, and cooking equipment.

**Dress a Doll.** Help a child dress a doll. While you hold a doll, have the child name the pieces of clothing to put on the doll. Alternately, introduce a puppet, and have the child tell the puppet how to dress the doll.

**Puppets.** You and a child wear finger or hand puppets and have the puppets take turns telling stories such as Little Red Riding Hood or The Three Little Pigs.

**Broken Toy.** Present a child with a broken toy that has a missing part and ask the child, *What’s wrong?* or *Why won’t it work?*

**Misnaming.** You (or a puppet) misname common objects, saying things like, *This is a dog* while pointing to a toy cat, encouraging the child to offer the appropriate name for the object.

**Reading.** Read a picture book with a child. To encourage phonological awareness, near 3 years, 6 months and older while you read, play games in which you and the child clap out syllables in words and make up rhyming words.

**Silly Puppet.** To encourage rhyme awareness, have a silly puppet miss say words for the child to correct. To illustrate, reading a book the silly puppet says *dog* as *hog*, which you and the child then correct, saying something like, *No, Silly Puppet. It's not a hog. It's a dog.*

**Family Photos.** To facilitate expressive language, ask a child's caregivers to bring in a family photo album and have the child tell you about the album photos.

**Picture Sequence Cards.** To encourage speech in sentences, lay out picture sequence cards and ask a child use the pictures to tell a story.

**Most Favorite/Least Favorite.** To encourage a child's story telling skills, ask the child to tell you what is his or her favorite/least favorite cartoon, television program, food, animal, and so on. Alternately, ask the child, *What did you have for breakfast?* or *Where's your favorite place to go in the entire world?*

**Broken Toy.** To encourage a child's language expression, present the child with a broken toy and ask him or her to tell you what is wrong and how to fix it.



**Tell a Story.** Give the child a picture book and ask him or her to tell a story. Alternately, wear finger or hand puppets and either have the child tell a story to the puppet or have the puppet tell the story.

**Play Acting.** Play act with a child using favorite activities and characters, for example, playing house, going grocery shopping, or pretending to be a Jedi Knight, or the Power Rangers.

**Slow Speech.** To encourage a child to speak more slowly, you speak more slowly. Persons in a conversation tend to mirror the speech rate of their conversation partner.

**Moon Talk.** To slow down a fast speaking child, explain you are playing a game called Moon Talk, because on the moon everyone speaks in slow motion.

**Explain a Game.** To encourage language expression, have a child explain a game to you or a puppet, for example, jacks, Cootie, Old Maid, or hide-and-seek.

**Funny Clothes.** Enter the room wearing something funny (perhaps upside-down toy glasses), and encourage the child to notice and discuss it.

**Treasure Hunt.** To encourage language expression, play a treasure hunt game in which you visually impairs a stuffed animal with sunglasses, so that the child has to describe where the treasure is hidden in the room.

## **Talking with Infants**

1. While you and an infant interact, talk about what you and the child are doing and seeing.
2. Talk with an infant in a way that seems natural to you and that holds the infant's attention.

To keep an infant's attention, most often you will need to:

- Talk in a higher than usual pitch
  - Talk about things both you and the infant can see, smell, touch, or hear
  - Use exaggerated intonation
  - Keep your sentences and vocabulary simple
3. Talk about what you and your child are doing and seeing during daily routines such as eating meals, preparing for bedtime, and changing diapers.
  4. Avoid extensive use of electronic teachers (videos, tapes, and television) because they do not change what is said based on an infant's response.

## **Talking with toddlers**

1. Interact often with a child and, when you do, talk about you and the child are doing and seeing.
2. Focus more on what a child says than how it is said.
3. Speak in short simple sentences about the here and now.
4. Talk about what seems to interest a child.
5. Encourage a child to communicate "using your words."
5. Have fun. Stay away from drills and rote memorization.

6. Avoid extensive use of electronic teachers (videos, movies, and television), which do not change their messages based on the child's response.

## Speech Samples

Intended Words	Leslie
1. daddy	dædæ
2. mommy	mama
3. doggie	gaga
4. patty (cake)	bæbæ

Intended Words	Judy
1. mommy	mΛm
2. daddy	da
3. yeah	ja

Intended Word	E
1. bottle	baba
2. bubble	baba
3. Pop Pop*	dada
4. daddy	dada
5. mom	mam
6. up	Λp

\* = *Pop Pop* is the family name for Grandfather

Intended Words	E
1. daddy	dædæ
2. hi	hai
3. down	da
4. mom	mam
5. hop	bap
6. water	wawa
7. book	bʊk
8. bow	bou
9. baby	bΛbΛ
10. up	Λp
11. please	bai
12. bye	bai
13. bag	ba
14. bubble	bΛ
15. pop	bop
16. ball	bɔ
17. pop pop*	pop pop

\* = *Pop Pop* is the family name for grandfather.

Intended Words	Jacob
1. tape	ti
2. duck	dʌ
3. close	doʊ
4. okay	ki
5. gate	gi
6. whee	i
7. cow	kaʊ
8. "a"	i
9. cake	gik~keɪk

\*The following words are exceptions to the error pattern: *away, lady, Jacob, rain*.

Intended Words	Child
1. doggie	gʊgi
2. cuddle	kʊku
3. rabbit	babi
4. man	mam
5. crispies	pi:pi
6. piggy	pi:pi
7. apple	papa
8. about	bəbaʊ
9. all gone	gʊgʊn
10. acorn	ke:kʊn

Intended Words	Child
1. ball	bo.ʊ
2. mama	mama
3. pad	pæ
4. big	di?
5. boo	bu
6. milk	ni?
7. bʌbʌbʌbi**	babadi
8. me	ni
9. pa	pa
10. "b"	di?

\*\*= a nonsense word that the child imitates

**Speech Treatment Early and Late: References for Major Points**  
**Oregon Speech-Language Hearing Association**  
**October 9<sup>th</sup>, 2015**  
**Ken Bleile**

**Birth to Three Years**

- The brain is designed (and best able) to learn many aspects of communication early in life.

Bleile, k. (2013). The Neurological Basis of Speech Learning (Ch 4), In *Manual of Speech Sound Disorders: A Book for Clinicians and Students*. New York: Cengage.

- Research studies support that communication problems of infants and toddlers can be treated successfully.

Infant Health and Development Program. (1990). A multisite, randomized trial. *Journal of the American Medical Association*, 263, 3035–3042.

Dawson, G., Rogers, S., Munson, J. Smith, M., Winter, J. Greenson, J., Donaldson, A. and Varley, J. (2010). Randomized, Controlled Trial of an Intervention for Toddlers with Autism: The Early Start Denver Model. *Pediatrics*, 125, e17- e23.

- ASHA Policies on Early Intervention  
<http://www.asha.org/policy/PS2008-00291/>

- State Baby Fact Sheets  
<http://www.zerotothree.org/public-policy/state-community-policy/infant-and-toddler-state-fact-sheets.html>

- **Motherese** answers a caregiver question probably old as Homo sapiens: how do I get and keep an infant's attention?

Bleile, k. (2013). Talking with Children (Ch 18), In *Manual of Speech Sound Disorders: A Book for Clinicians and Students*. New York: Cengage.

Kuhl, P. (2010). Brain mechanisms in early language acquisition. *Neuron*, 67, 713-727.

- The social brain is a theory that, because humans are social creatures, learning is energized when it occurs within a social context

Kuhl, P. (2007). Is speech learning 'gated' by the social brain? *Developmental Science*, 10, 110-120.

- **Selectivity**

Ferguson, C., & Farwell, C. (1975). Words and sounds in early language acquisition: English initial consonants in the first fifty words. *Language*, 51, 419–439.

Schwartz, R., & Leonard, L. (1982). Do children pick and choose: An examination of phonological selection and avoidance in early lexical acquisition. *Journal*

of *Child Language*, 9, 319–336.

- Treatment approaches

### **Responsivity Education/Prelinguistic Milieu Teaching (RE/PMT)**

Responsivity Education/Prelinguistic Milieu Teaching is intended for an infant who does not use gestures and vocalizations as consistently as other children. It is appropriate for a child between approximately 9 and 15 months or an older child with developmental delay.

Warren, S., Bredin-Oja, Escalante, M., Finestack, L, Fey, M., & Brady, N. (2006) Responsivity education/prelinguistic milieu teaching. In R. McCauley & M. Fey (Eds), *Treatment of language disorders in children*. 47-76. Baltimore: Paul H. Brookes.

### **Enhanced Milieu Teaching with Phonological Emphasis (EMT/PE)**

EMT/PE is an option for a child who experiences difficulties in both speech and expressive vocabulary development, which includes many toddlers. Though developed as a treatment for a child with cleft lip and palate, the approach also is an appropriate choice for a child approximately 14 to 24 months with a speech sound disorder, and with an older child with developmental delay.

Scherer, N. & Kaiser, A. (2010). Enhanced milieu teaching with phonological emphasis for children with cleft lip and palate. In Williams, McLeod & McCauley, (Eds). *Interventions for speech sound disorders in children*. Baltimore, MA: Brookes Publishing, 427-452.

### **Core Vocabulary**

This approach is appropriate for a child with inconsistent speech errors. As the authors observe, approximately 10% of children with speech sound disorders are highly inconsistent in their word attempts. For example, a child with inconsistent speech may pronounce *cat* as *ta* in the morning, as *at* in the afternoon, and *ka* in the evening.

Crosbie, S., Pine, C., Holm, A., & Dodd, B. (2006). Treating Jarrod: A core vocabulary approach. *Advances in Speech-Language Pathology*, 8 (3), 316 - 321.

Crosbie, S., Holm, A. & Dodd, B. (2005). Intervention for children with severe speech disorder: A comparison of two approaches. *International Journal of Language and Communication Disorders*, 40, 467 - 491.

### **Stimulability Intervention**

Stimulability Intervention is intended for a child with a limited phonetic inventory whose speech contains a number of nonstimulable sounds. As indicated in Chapter 17, *Treatment Sounds*, with a young child a clinician often selects a stimuable treatment sound to reduce frustration and to promote clinical success. The clever idea behind Stimulability Intervention is to transform nonstimuable sounds into stimuable ones, thus making them good candidates for treatment. The approach is intended for a child between 2 and 4 years, though it could easily be adapted to the needs of a younger child.

Miccio, A. W. (2009). First things first: Stimulability therapy for children with small phonetic repertoires. In C. Bowen, *Children's speech sound disorders*. Oxford: Wiley-Blackwell, 96-101.

Miccio, A. W., & Williams, A. L. (2010). Stimulability treatment. In A. L. Williams, S. McLeod, & R. J. McCauley (Eds.), *Interventions for speech sound disorders in children* (pp. 179-202). Baltimore, MD: Paul H. Brookes.

**PROMPT (Prompts for Restructuring Oral Muscular Phonetic Targets)**

PROMPT is one of the few intervention programs for speech sound disorders specifically intended for children with medical needs and developmental disability. PROMPT views speech sound disorders through the lens of speech motor control. It is appropriate for children with speech sound disorders 2 years or older, including those with sensory disorders, developmental problems, and childhood apraxia of speech, and may be attempted with a child as young as 18 months.

Hayden, D. (2006). The PROMPT model: Use and application for children with mixed phonological-motor impairment. *Advances in Speech-Language Pathology, 8* (3), 265-281.