

# SPEECH SOUNDS AND MORE

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AN INTRODUCTION TO ARTICULATION AND PHONOLOGY TREATMENT

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## COMMUNICATION

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- What is communication?
  - One message that leads to another
- What are the impacts of communication difficulties on our students?

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## SPEECH SOUND DEVELOPMENT

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Children learn speech by listening to and imitating the speech of those around them

**SPEECH SOUND DEVELOPMENT**

The development of correct articulation is a gradual but sequential process

Speech development is a long process that can take up to nine years

By the age of 3-4 a child should be understood by strangers

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**WHEN ARE SPEECH SOUNDS LEARNED?**

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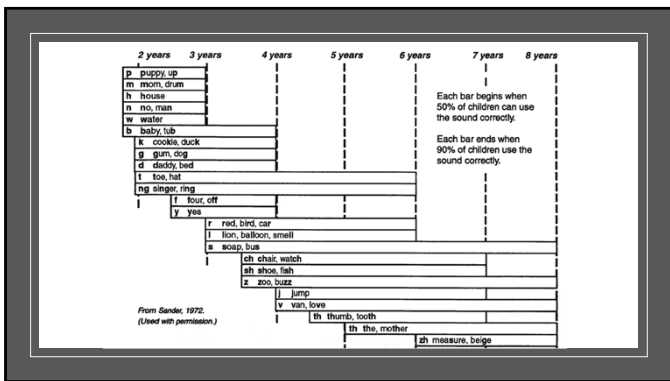
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## HOW ARE SPEECH SOUNDS MADE?

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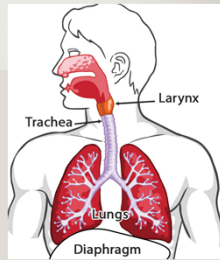
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## PROCESS OF ARTICULATION

- Air comes up from the lungs and passes through the larynx (voice box)
- Air passes through the vocal folds
- Minor adjustments in your oral cavity and nasal cavity will alter the sound that is produced
- Requires accurate **placement, movement, timing** and **force** of the articulators



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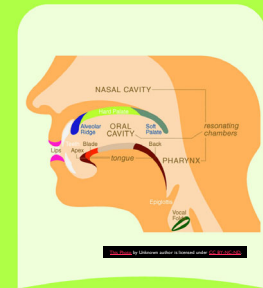
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## voice ARTICULATORY ANATOMY



## CONSONANT PRODUCTION

- Where are the sounds produced (PLACE)
- How are the sounds produced (MANNER)
- Whether or not the vocal folds are vibrating (VOICE)

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## PLACE OF SPEECH SOUNDS

PLACE NAME	LOCATION
Bilabial	Lips together (p, b, w, m)
Labiodental	Lower lip to upper incisors (f, v)
Lingua-dental/Intra-dental	Tongue tip to upper incisors ("th")
Lingua-alveolar/Alveolar	Front of tongue to upper alveolar ridge/gum line (t, d, s, z, l, r, n)
Lingua-palatal/Palatal	Tongue to hard palate (j, r, sh, ch, j, sh)
Lingua-velar/Velar	The back of the tongue to soft palate or velum (k, g, ng)
Glottal	Restriction of the glottis or opening to larynx (h)

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## MANNER OF PRODUCTION

Manner	Explanation
Stops	When the tract is temporarily closed (p, b, t, d, k, g)
Fricatives	Sounds that have very narrow constriction through which air must pass through, creating a hissing noise (f, v, s, z, "sh", "zh")
Affricates	Sounds that start as a stop followed by a fricative release ("ch", "j")
Glides	Sounds are produced while gliding from one vowel position to another (w, "y")
Liquids	Are consonants with a vowel like quality of air turbulence (l, r)
Nasals	Are produced when the oral cavity is closed to exiting air, but the soft palate is lowered and air passes through the nose (m, n, ng)

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## VOICE

Voiceless	Voiced
/p/	/b/
/f/	/v/
/s/	/z/
/t/	/d/
/k/	/g/
	/n, m/, "ng"
"th" (this)	"th" (the), /w, l, r, h/
"sh", "ch"	"zh" (measure), "j" (jello)

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**VOWELS**

The vowel symbols are located at the approximate position for the tongue when producing them. All vowels are voiced and the back vowels are produced with lip-rounding while the front vowels are not.

Raymond Hickley  
December 2001

- Vowels are produced by vibrating the vocal folds to create voice and moving the tongue, lips, jaw to modify the sound

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**WHAT IS A SPEECH SOUND DELAY?**

- **Articulation Disorder**
  - When children are having difficulty making a sound well past the accepted age limits for the development of the sound
  - Children have difficulty with just one sound or a few other sounds
- **Phonology Disorder**
  - A child has difficulties with the development of speech sound patterns and the rules for the sound system

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**WHAT CAUSES A SPEECH DELAY?**

- Structural defects
- Neuromuscular
- Environmental
- Family history
- No known cause

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### WHICH CHILDREN ARE AT RISK FOR SPEECH SOUND DISORDERS?

- Developmental disorders such as autism
- Genetic disorders such as Down syndrome
- Hearing loss
- Nervous system disorders such as cerebral palsy
- Illnesses such as frequent ear infections
- Physical problems such as a cleft lip or palate
- Too much thumb-sucking or pacifier use
- Low education level of the parent
- Lack of support for learning in the home

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### SPEECH SOUND ERROR EFFECTS ON ACADEMICS

- Phonics- word attack during reading
- Spelling-sounding out words
- Sharing knowledge and information verbally- Can they be clearly understood?
- Auditory Discrimination- Can they hear the difference?
- Listening skills

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### WHAT DOES A SPEECH SOUND ERROR SOUND LIKE?

Three types of articulation errors:

- **Substitutions:** one sound is replaced by another (for example: won for run)
- **Omissions:** when a sound is left out or not produced (for example: te-phone for telephone)
- **Distortions:** when a sound is not produced clearly (for example: slushy "s" sound)

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### WHAT DOES A SPEECH SOUND ERROR SOUND LIKE?



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### THEY HAVE AN ARTICULATION DELAY...NOW WHAT?

- Your SLP will give you speech sound goals to work on with your student
- The student should be able to produce the sound with cues, if not the SLP will have to work with that student to elicit the sound before you work on that speech target
- Traditional Articulation therapy (sound by sound approach) follows a hierarchy
  - Listening for sound
  - Isolation
  - Syllable
  - Word level: initial, final, medial positions of words, and blends
  - Phrase level
  - Sentence level
  - Story level
  - Conversational level

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### BASIC PRINCIPLES OF IMPLEMENTING SPEECH GOALS

- Learning a new sound is like learning to ride a bike
  - You learn fast and are more successful if you start with something easy (tricycle) and then progress to something harder (two-wheeler bike)
  - The same is true for learning a new sound
  - Stick to working on one sound in a word at a time
  - Always start with imitation EVERY time before you move on to spontaneous productions of the sound (stay away from "tasting")
  - Be consistent and practice with your reinforcement (for example instead of "good job" say "I like how you kept your tongue behind your teeth for the /s/ sound")
  - Keep the student working at a high level of success. Failure for the student will lead to frustration, this is why speech should be broken down into small manageable steps
  - Check in with your SLP before you move to another step of production
  - Make it FUN

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### WHAT CAN I DO TO HELP THEM SAY THEIR TARGET SOUND?

- Cues can be used to help the student say their sound
  - Visual cues: hand signals
  - Tactile cues: sliding your finger down your arm and tapping your wrist for the second sound in a s-blend
  - Auditory cues: modelling the student's sound throughout their day
  - Verbal cues: describing your student's sound

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### THINGS TO KEEP IN MIND WHEN TARGETING SPEECH SOUNDS

- It is easier to produce the target sound in single syllable words to begin with (e.g. fire vs. fireman) and work up to two and three syllable words
- **Blends:** A blend is a pair or group of letters that work together using each of their individual sounds separately (e.g. spoon, plane, green). Producing the target sound as a singleton should come before producing it in consonant blends (e.g. fire vs frog)
- **Diagrams:** A diagraph is a pair of letters that make one sound (e.g. chair, shoe, this). Be careful not to confuse speech sounds with letter combinations that may not make the target sound (e.g. shoe begins with the letter 'S' but does not make the /s/ sound)

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### HELPING CHILDREN WITH ARTICULATION DELAYS

Reinforce

Reflect

Remind

Model

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### IDEAS FOR WORKING ON SOUND AWARENESS OF SOUND ERRORS WITHIN THE CLASSROOM

- During a small group activity, play "find the sound" while they listen to a short story and see how many times, they hear the sound
- Help your student find their sound on one page of a book they're reading or an assignment that they are completing

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### BREAK TIME



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### PHONOLOGY



- Is the set of rules that governs a language's sound system
- Usually 100% accurate by 5 years of age
- Phonological Delay = The child has difficulty with the development of speech sound patterns and the rules for the sound system
- They create their "own language"

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
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### EXAMPLES OF PHONOLOGICAL PROCESSES

- Final consonant deletion- dropping off the ends of words
  - "ca"  "bu" 
- Consonant cluster reduction- dropping one or more consonant sounds when they are grouped together
  - "nake"  "pane" 
- Fronting- moving sounds from the back to the front
  - "dum"  "tey" 
- Stopping
  - "tour"  "doup" 

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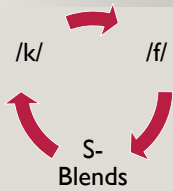
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### PHONOLOGY APPROACH

- Treatment is divided into cycles. The length of each cycle will vary.
- Several cycles will be needed before the child's speech is easily understood.
- Speech sounds are not drilled to perfection, rather a particular sound is worked on for a predetermined amount of time and then a new sound is targeted.
- Focus is on patterns, not sounds.
- Families of sounds share similar characteristics




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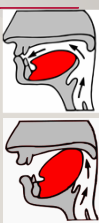
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### EXAMPLE FAMILIES OF SOUNDS

<p><b>MANNER OF ARTICULATION</b></p> <ul style="list-style-type: none"> <li>Nasal Sounds /m, n/</li> <li>Fricatives-Airflow Sounds /s, f, v, z/</li> </ul>	<p><b>PLACE OF ARTICULATION</b></p> <ul style="list-style-type: none"> <li>Bilabial Sounds /p, b, m/</li> <li>Velar Sounds /k, g/</li> </ul>	
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### TIPS

- When modeling sound productions, be face-to-face and ensure the child is watching your mouth
- It is easier to imitate a sound/word than it is to name a picture on your own
- Slow your rate of speech
- Don't correct every error the child makes with speech sounds. Focus on the current target sound and choose a few words that the child uses often.
- In group activities, ask other children to say words and/or answer questions so that you don't draw particular attention to that child.
- Have a focused practice time (many repetitions in a short period of time)
- Teach functional phrases

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### IDEAS FOR WORKING ON PHONOLOGY WITHIN THE CLASSROOM

- Small Group/ Individual Activities:
  - Use a small visual (e.g. on the corner of their desk) to remind them of their target sound.
  - Play games using pictures of words that start with the child's target sound (e.g. Memory, Go Fish) or a game that uses a repeated phrase/sentence containing the target sound (e.g. I Spy for S-Blends)
  - Create a collage of old magazine pictures of items beginning with the target sound
  - Highlight the target sound in a classroom reading activity (or ask the student to do so before reading)
  - Work on accurate production of the sound within spelling or vocabulary words
  - Sing songs with the target sound at a slower pace so you can emphasize the sound
  - Exaggerate the target sound while reading and/or speaking with the child
  - Choose a new vocabulary word of the day with the target sound and encourage children in the class to use it throughout the day

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### CLASSROOM EXAMPLE #1

**SIMON'S GOALS**

- 80% correct production of /s, z/ (with tongue behind the teeth) at the sentence level
- 80% correct production of /r/ at the sentence level

**CLASSROOM ACTIVITY**

- Gr.2 Science Class-Unit: Buoyancy & Boats
  - Students have been divided into small groups and are discussing their predictions of whether objects will sink or float
  - Next, students will be testing their predictions

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### CLASSROOM EXAMPLE #2

#### JUNIPER'S GOALS

- Say /sp, st, sn, sm/ at the beginning of words 8 out of 10 times.
- Say / fl / at the beginning of words 8 out of 10 times. (Current target sound in Phonological cycle)
- Say /k/ at the beginning of words 8 out of 10 times.

#### CLASSROOM ACTIVITY

- Gr. I Language Arts-Theme: Fairy Tales
  - The teacher has shared multiple repeated readings of "The Three Little Pigs"
  - Several centers are set up around the classroom to encourage children to illustrate or re-enact the story

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### CHILDHOOD APRAXIA OF SPEECH

- Difficulty planning and executing motor sequences required for speech
  - Placement, movement, timing and/or force of articulators is imprecise or inaccurate
  - Characterized by inconsistent productions of words and/or groping
  - Poor ability to imitate sounds and words
  - Child substitutes and/or omits vowel and consonant sounds in words
- (Errors with vowel sounds are not common with other speech disorders)

Prevalence <1%

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### WHAT CHILDHOOD APRAXIA OF SPEECH SOUNDS LIKE




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### SPEECH RED FLAGS ARTICULATION AND PHONOLOGY



Prevalence 5-10%

- Reduced intelligibility
- Omitted sounds (e.g. "nack" for snack)
- Sound substitutions (e.g. "doap" for soap)
- Lisp -frontal (i.e. tongue between the teeth) vs. lateral (i.e. air escaping through the sides)
- Child is not yet correctly using the expected speech sounds for their age

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### FLUENCY IMPAIRMENT AKA DYSFLUENCY/DISFLUENCY

- Typical Disfluency
- Developmental Disfluency
- Fluency Impairment/Disorder
- Increased severity when child is feeling pressured, rushed, tired or ill




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### FLUENCY IMPAIRMENT

#### STUTTERING

- Articulators are ready but no sound
- Repetitions of sounds, words and/or phrases
- Prolongation




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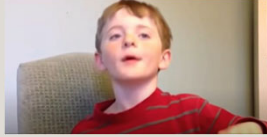
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## FLUENCY IMPAIRMENT

### CLUTTERING

- rate that is abnormally rapid and/or irregular (talking in spurts)
- excessive breaks in the normal flow of speech that seem to result from disorganized speech planning
- Seeming to not know what they want to say




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## WHAT CAN I DO TO HELP KIDS WITH FLUENCY? DYSFLUENCY (A.K.A. STUTTERING)

- As an EA, you will not be working directly with students who are experiencing dysfluency. However, you can facilitate fluency by:
  - Reducing your rate of speech to encourage the child to do the same (don't say "slow down")
  - Give the child your full, undivided attention when they are speaking to you
  - Focus on the child's message and respond with interest
  - Increase your wait time when asking questions (reduce the pressure)
  - Wait patiently for the child to complete their thought. Avoid finishing their sentences.

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## DYSFLUENCY (A.K.A. STUTTERING) RED FLAGS



Prevalence 1-4%

- Developmental stuttering
- Repetitions, Prolongations
- Watch for eye closing, lip pressing, head & body movements

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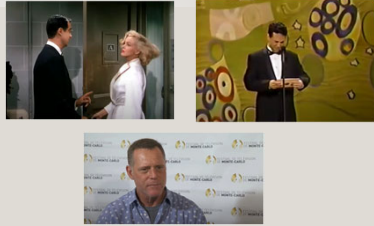
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## VOICE

- Includes:
  - Pitch (high/low)
  - Volume (loudness)
  - Quality (attributes)



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## VOICE DISORDERS

### FUNCTIONAL DISORDER

- Result of misuse or abuse
- Excessive talking, screaming, yelling
- Smoking, and inhaling irritants
- Excessive clearing the throat or coughing
- Can be treated by an SLP

### ORGANIC DISORDERS

- Result of disease or pathology
- Cancer
- Accident
- Surgery (e.g. laryngectomy)
- Require medical intervention

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## SPEECH RED FLAGS VOICE



- Hoarse or breathy sounding voice
- Nasal quality to voice
- Consistently raspy voice

Prevalence 6%

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### VOICE DISORDERS

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- As an EA, you will not be working directly with children with voice disorders; however, if you or the teacher notice children with these red flags please bring this child to the attention of your SLP.

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### QUESTIONS?

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