

**Childhood Apraxia and
Speech Sound Disorders
A Multi-Sensory Approach to
Achieving Speech Outcomes**

David W. Hammer, M.A. CCC-SLP

**If children have minimal speech,
how do we get started?**

- Build on expressions, vehicle, animal and environmental sounds.
- [Handout – “The Big Book of Exclamations” by Teri Peterson]
- [Video - Shane, age 3-6 with Ned’s Head]

**How do we facilitate accurate
articulatory postures?**

- Use “starter positions” such as “mm”, “oo”, “ee” and even “rr”!

How do you handle “fossilized” or “frozen form” productions?

- May need to (1) “fool the system” (2) use “over-practice” (tap word on string to enter kitchen) and/or (3) nonsense words with similar sounds
- [Video – Abby, age 10, using starter positions to break habitualized productions]

Does it help to use “catchy” names for sounds?

- Enhances fun with sounds, but try to incorporate placement/manner cues. [handouts - Verbal/Visual Cues and Parent Fill-in for home usage]
- “Friendly Sounds” Demo
- [2 Videos – Andon, age 4-3 part way through Friendly Sound concept introduction and then during play]

Do we work on isolated sounds or sound sequences?

- Focus is on movement sequences.
- Build syllable structures. [Minions say “tada” video on YouTube]
- “sh” demonstration

What should I consider in selecting speech targets?

- Margaret “Dee” Fish in “Here’s How to Treat CAS” - not just nouns, but verbs and expressions like “send” (a text), “hang out” & “hit me up”. [Deaf community “Internet Slang meets ASL”]
- Teach CONTROL/POWER words beyond “no”.
- Target final **voiceless** consonants. (Use vowel prolongation as an alternative to voicing focus.)

What should I consider in selecting speech targets?

- Individualize “I” phrase word choice based on sound repertoire and co-articulation (e.g. “I pick, I need, I see, I choose” in place of “I want”)
- Use child and therapy goal-determined strategies like fun frustration phrases [“Oh milkshake!”]
- Develop a core vocabulary book in early stages.

What is a core vocabulary book?

- An important tool for children with limited lexicons.
- Enables the child to sense early success.
- Allows parents to feel part of the “team”.
- A “Grandma’s Brag Book” contains pictures for functional communication and therapy targets.
- Has word printed at the top.
- [Video Clip - Luke, age 3-2 and Sharon]

What should I consider in moving to word combinations?

- The use of 3 bins/boxes/buckets to help decide “at the moment” which 2 words should be targeted
- First bin -- “well-rehearsed” words
- Second bin -- words child can say with cueing
- Third bin -- future functional words
- Start with bin #1 only - then #1 and 2...

What should I consider in moving to word combinations?

- *PLEASE, PLEASE, PLEASE...*
avoid using “please” as a word to expand word sequences in the early stages!!!

How do I use “key words” and “key contexts”?

- Use “key words” or “key contexts” to build automatic responses for more challenging sound sequences.
- Example: /k/ facilitation with 4-year-old

How do you combine these ideas in therapy activities?

- [Video – Abby, age 10] demonstrating:
 - 1) Structured activity with play embedded
 - 2) “Rule of 3”
 - 3) Individualizing “I” phrase choice
 - 4) Use of “key words” to support targets
 - 5) Decreased use of “please” in practice phrases

What about vowel modification?

- Challenge not to move quickly through vowels – hold posture for extended proprioceptive feedback.
- In DTTC and “Time to Sing” prolonging vowels.
- [Video – Sam, age 3-11 prolonging vowels in two-syllable word enhancement]

Vowel Resources

- Pam Marshalla “Place Cues” on YouTube.
- Vowel Viz App – has vowel chart
- Book “Vowel Disorders” and “Handbook of Vowel Disorders” by Ball and Gibbon.
- Vowel “warm-up” using “If You See A Kitten” by Jack Butler.
- “Vowel Owls Sorting Set” (SuperDuperInc.com)

How do we incorporate the use of pictures into therapy?

- Use strategies to sequence pictures for building an airport runway, a road, or a path to obtain a snack!
- Advanced Webinar feedback
- [Video - Jonah, age 4]

How do we incorporate early literacy skill building into tx?

- Embed focus on phonological awareness and early literacy skills.
- [Video - Austin, age 4-5]

How do we incorporate early literacy skill building into tx?

- Use repetitive books with “fill-in-the blank” strategy.
- Solomon/Pereira “Repetitive Books” article in Apraxia-kids.org
- Read SAME book for 6 weeks!
- Article – “What Factors Place Children With Speech Sound Disorders at Risk for Reading Problems?”

How do we address the suprasegmental features?

- First of all, address throughout therapy.
- At sound level, try “Sounds in Motion” cues.
- Use music [“Time to Sing” and others]
- Hum tunes into kazoos
- [Video – Sophia, age 4-11]

How do we address the suprasegmental features?

- Prolong vowels and exaggerate stress.
- Target increased inflectional range and variation through use of slides, mountain climbing, hand tracing, puppets, character figures, superheroes, etc.
- [Video – Sophia, age 4-11]

How do we address the suprasegmental features?

- Use activities like “Build-A-Sentence” for word stress and adapt with frog “clicker”.
- Four different colored phrases – “Who, What, Where, and When”.
- If take out “When”, will allow for yellow to mean “pick any color you need”.
- Reinforce through selection of dinosaurs, figurines, etc for battles, dance contests, etc.

How do we address the suprasegmental features?

- [Video - Luke, age 5-6 with Build-A-Sentence for word stress]

How do we address the suprasegmental features?

- [Kathy Jakielski and Megan Young's "Songs, Toys and Games for Suprasegmentals" handout for loudness, pitch, stress and rate]
- Use apps like Voice Changer (record then play back with "tough guy", "mouse", "slow snail" ...)
- Facilitate enhanced auditory feedback- talk into tubes, echo mics, boxes, water, etc.
- [Video Clip - Cole age 3-6]

How do we keep children motivated in therapy?

- Intrinsically not that much fun, so must make therapy exciting and varied.
- Find out what gives them "brain tingles!"
- "Start positive – End positive!"
- Allow for silences and time to process.
- "Acknowledge the feeling".
- [Video – River, age 3-11 summarizing this]

STRATEGIES FOR KEEPING SCORE

- OBJECT/PICTURE KNOCK DOWN with graduated scoring [handout]
- Roll a ball; roll a log; use a pull-back car; use Hog Wild Poppers from Amazon.com and Super Duper Card Holders
- [Video – River, age 3-11 with objects]

STRATEGIES FOR KEEPING SCORE

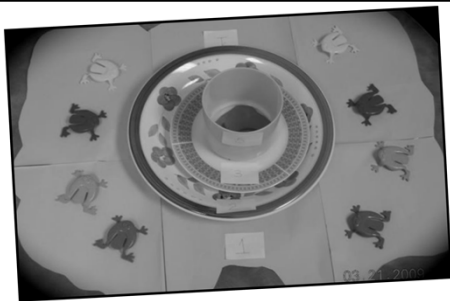
- BASKETBALL SHOOT with 15 picture cards
- 3 semi-circle rows
- Child picks up picture – practices X times – shoots from where picked up picture (can stand on picture and practice “on...”)
- Have 2 “wild cards” for bonus points
- [Picture of favorite hoop]



3-in-1 Play Center
Discovery Toys/K-Mart/Walmart

STRATEGIES FOR KEEPING SCORE

- LIZARD LEAP [picture slide]

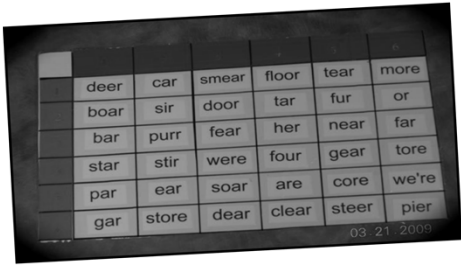


Lizard Leap with Graduated Scoring System

...designed for /l/ and /ll/ blends

STRATEGIES FOR KEEPING SCORE

- RED ROLL/GREEN ROLL (or other colors)
- 10 checkers – goal to get rid of all 10 first
- Roll colored dice and practice X times
- “King side” down unless 2nd landing on space
- [Picture slide showing “Bingo” layout]



Red Roll/Green Roll with "Bingo" layout

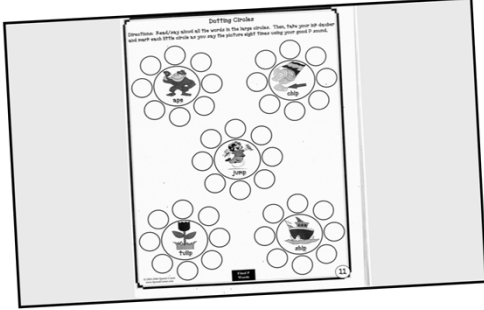
...using 10 checkers for each player

PICTURE DROP

- Enhances verbal response on demand and facilitates focus.

DO-A-DOT MARKER ACTIVITIES

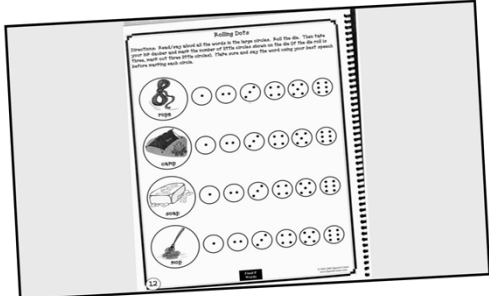
- Products by Rachele Ellsworth from Speech Corner
- Dot Markers from speechcorner.com or dotart.com
- [In Selected Resources handout]
- [Examples]



Do-A-Dot Dotting Circles
...with challenge modification

Use of dice in therapy

- Opportunity for “fun frustration phrases”
- Foam dice best to contain on table
- Can purchase self-contained dice “roller” [picture slide]

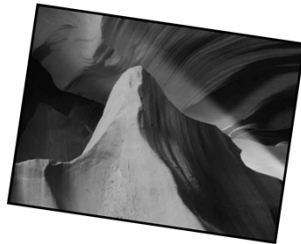


Do-A-Dot Rolling Dots
...with increased repetitive practice



A Favorite Multi-Sensory Activity

Hop/Jump/Leap Over Activity for Blocked or Random Practice



Another Favorite Multi-Sensory Activity

Cave Hunt with Flashlight

Sound shift from an accurate inaccurate word position

- Use WORD PAIRS with picture cards or printed word.
- Best with continuants (s, sh, f)
- Bus-sock; push/mash-shoe; off-foot
- Fade volume cues (same volume-whisper - "think the word").

Kiss/Pass Game

- Need 2 homemade spinners
- One spinner divided into 4 “pie” segments with 2 pictures of hands and 2 with lips
- Other spinner divided into 6 segments with pictures of “yucky” or “ouchy” things
- Spin both and use word pair practice.

What about “th”??

- Challenging to figure out word targets
- [Audience participation – Magna Doodle]

Adapt Toys to Fit Your Needs and Prolong Their Usefulness

- Playmobil Playground example
- “Bean Bag” Toss for repetitive practice – easy to make – get dads involved!
- [Wooden Dinosaur Example]

Dinosaur Feed Option

- Place carpet square close to dinosaur.
- Place desired toy/game at back of room.
- Says object/picture name _ x's & throws.
- If gets it into mouth, gets to move back.
- If not, adds x more times to repetition.
- Continue play until reaches toy/game.

Using Creative Stories to Individualize Therapy

- "Captain Hammer and Super Sean" book written by parent of Sean
- Available on www.apraxia-kids.org

Top 10 Favorite Games I Have Used Over the Years

1 Bob the Builder Bricklaying Game [picture]
(now Skooby Doo Brick Game)

**Favorite Games I Have Used
Over the Years**

2 TAZmania [picture]

**Favorite Games I Have
Used Over the Years**

- 3 Marble Race Game
- 4 Tumblin' Monkeys/Honey Bee Tree
- 5 Candyland/ Candyland Castle
- 6 Marvel Magnet Alphabet Set
[Video – Olavo, age 8-6]

**Favorite Games I Have
Used Over the Years**

- 7 Pirate Pop-Up
- 8 Pizza Party
- 9 Pop The Pig
- 10 Anything Sue Freiburger makes!!!

Other games suggested by therapists and parents

- Alfredo's Food Fight
- Caribou by Cranium
- Cookin' Cookies (Fundex)
- Pizza Pizza (Playskool)
- Trick or Treat Land
- Don't Wake Daddy
- Crocodile Dentist

Additional Activities that Support Home Practice

- 1 Bowling Knock Down
- 2 Object Drop
- 3 Hide and Find
- 4 The Feeling Game

Ideas I picked up from parents, therapists and students

- Squirt laminated pictures at bath time.
- Paint a fingernail after so many reps.
- Use stretchy bugs for continuants.
- Pop bubble wrap under table (student idea)
- Use wipes container for mouth to feed cards.
- "Earn" cotton balls for snowball fight.
- Stabilize jaw with marshmallows on back molars.

What are the most common parent suggestions I give?

- Consider Kathy and Kate Hennessy's book "Anything but Silent" from apraxia-kids.org
- Don't work so hard to understand unclear speech.
- Understand a hierarchy of response [handout]
- Build in communication temptations [handout]
- Watch your rate of speech in giving directions, asking questions and providing models.
- [Video – Simi, age 7-2]

What are residual issues that we often deal with in CAS therapy?

- Persistent sound and language errors

PERSISTENT SPEECH SOUND ERRORS

- Use surveys such as "Sports Surveys". [example]
- Create poems and stories for others in therapy. [example written by adolescent with D. Hammer]
- Do modified weather forecasts. [example]
- Design creative commercials. [example]

PERSISTENT LANGUAGE ERRORS

- For utterance expansion consider use of “sentence bops” (Modified “high 5’s”).
- Use Toss Across, “Push-on” lights, and drum sequences for 3-word utterances and “I” phrases.
- Use “Build-A-Sentence.”
- May encounter mixed sound/language errors as utterance complexity increases.
[Example of pronoun + is/are verbs]

How do we incorporate new technology?

- Mobile Technology and CAS study out of Australia.
- Dr Tricia McCabe tricia.mccabe@sydney.edu.au
- Speech Buddies by Articulate Technologies

SPEECH BUDDIES

- Cleaning – “Recommend one buddy per child, but if multiple users, clean like a fork or knife in mild soap, or submerge for a couple minutes in 70% isopropyl alcohol that you can buy in any drug store”. Alexey Salamini - Articulate Technologies
- [They have video to demonstrate on website]

How do we incorporate new technology?

- Use apps (e.g. Speech Stickers by Carol Fast SLP, V-Lingo, Voice Changer) [Handout-apps]
- Quote: "(The I-Pad) can literally replace every single flashcard that we have, and we have lots and lots of flashcards."
- Quote: "The I-Pad is a really cool Swiss Army knife but you can't build a house with it."
- [5 Steps to Getting an iPad Covered...]

Electropalatography

- Amy Meredith, University of Washington-Spokane
- Both SLP and child wear acrylic palate.
- Best for children 7 or older.
- Try to "hit" red circle target.
- Can lease system for \$100/month or purchase.
- Individual mold must also be purchased.

Computer Visual Feedback

- Has been available for years, but limited use by therapists.
- Can be the key when other strategies are not effective. (persistent "r" issues and persistent vowel errors)
- Four examples (1) IBM Speechviewer series (2) Video Voice (3) LINGWAVES TheraVox (4) Ultrasound Biofeedback

LINGWAVES TheraVox

- Company in Germany - WEVOSYS
- www.WEVOSYS.com
- [Video - Richie & vowel modification]
- [Video - Zachary & vowel extension]

Ultrasound Biofeedback

- Dr. Jonathan Preston, Syracuse University

Ultrasound Biofeedback Description

- Provides visual feedback of articulators
- Already can do this with the lips in a mirror but now trying to see the tongue with ultrasound
- Shows border between objects of different densities (i.e. border between the tongue and air above it)

Ultrasound Biofeedback Candidates

- Normal vision
- Good cognitive skills
- Can sustain attention and handle drill
- Older children (age 7 and up)
- [Video on DVD – Sean, sagittal view]

CONSONANTS	NAME OF SOUND	VERBAL CUE	OTHER CUES
“p” sound	Popping sound	“Where’s your pop?” “You forgot your pop.”	Fill cheeks up with air and blow out with the sound, feeling wind on hand
“b” sound	Popping sound	“Where’s your pop?” “You forgot your pop.”	Fill cheeks up with air and blow out with the sound
“m” sound	Humming sound	“Close you mouth and hummmm..”	Lips together and hum Touch to feel vibration
“n “ sound	Buzzing teeth or buzzing tongue sound	“Teeth together and buzz.”	Finger on clenched teeth to feel vibration
“t” sound	Tippy sound	“Use your tippy.”	Index finger to center of spot above upper lip
“d” sound	Tippy sound	“Use your tippy.”	Index finger to center of spot above upper lip
“h” sound	Open mouth windy sound	“Where’s your wind?” “I didn’t feel your wind.”	Open palm of hand up just in front of your mouth to feel wind
“k” sound	Throaty sound	“Where’s your throaty?”	Index finger pointed to throat
“g” sound	Throaty sound	“Where’s your throaty?”	Index finger pointed to throat
“f” sound	Biting lip windy sound	“You forgot to bite your lip.” “You forgot your wind.”	Bite lower lip with upper teeth and blow wind
“v” sound	Biting lip windy sound	“You forgot to bite your lip.” “You forgot your wind.”	Bite lower lip with upper teeth and blow wind
Initial “s” sound	Smiley windy sound	“Smile and make some wind.” “Keep those teeth together.”	Smile with teeth together and blow wind
Final sounds	Sticky sounds	“Where’s your sticky?”	Same as above for most but for “s” move forearm from left to right starting with an open hand and moving to a closed hand
“z” sound	Buzzing windy sound	“Use your buzz.”	Teeth together and blow wind
“sh” sound	Fat and fluffy sound	“Make it fat and fluffy.”	Lips out and puckered while blowing out

“ ch ” sound	Chomping sound	“I didn’t see those lips moving.” “Work your lips.”	Lips protruded while making chomp sound
“ j ” sound	Chomping sound	“I didn’t see those lips moving.” “Work your lips.”	Lips protruded while making chomp sound
“ l ” sound	Lifty sound or lizard sound if tongue low	“Open your mouth – tongue up.” “Touch the spot and drop.”	Mouth open, tongue up behind upper teeth, then lowered
“ r ” sound	Butterfly sound	“Push up on the sides and move back with your tongue.”	Demonstrate pushing up on sides of tongue in butterfly position
“ w ” sound	“oo” sliding sound	“ooo to eee sliding”	Start out in the ooo position with lips puckered then move to the eee sound
“ y ” sound	“ee” sliding sound	“eee to ooo sliding”	Start out in the eee position with lips spread then move to the ooo sound
“ sp, st, sk, sn, sl ” sounds and other consonant clusters	Friendly sounds	“You forgot your friend.”	With a straight index finger on table start moving finger from L to R while saying the /s/ sound then end by tapping finger on table when the “friendly” sound is added. Or move forearm with open hand from L to R while saying /s/ sound and point to other sound positions as indicated above

PARENT FILL-IN FOR SOUND NAMES

CONSONANTS	NAME OF SOUND	VERBAL CUES	OTHER CUES
The “ p ” sound	popping sound	“Where’s your pop?”	Fill cheeks up
The “ b ” sound			
The “ m ” sound			
The “ n ” sound			
The “ t ” sound			
The “ d ” sound			
The “ h ” sound			
The “ w ” sound			
The “ y ” sound			
The “ k ” sound			
The “ g ” sound			
The “ f ” sound			
The “ v ” sound			
The “ s ” sound			
The “ z ” sound			
The “ sh ” sound			
The “ ch ” sound			
The “ j ” sound			
The “ l ” sound			
The “ r ” sound			

STRATEGIES FOR KEEPING SCORE OBJECT/PICTURE KNOCK DOWN

1. Stand 5 objects or upright pictures on floor/table.
2. If can't stand up, place on pizza box "tables", cut- out egg carton sections, or upside down medicine cups.
3. Child predicts object/picture he will knock over.
4. Child rolls ball, kicks ball, shoots ball, etc.
5. Scores 5 points if knocks down guessed object.
6. Scores 3 points if knocks down another object.
7. Can get points totaled if two or more fall (3+5).
8. Object is to get perfect score of 25.
9. Place closer together for older children and further apart for younger children.

Parent Response Hierarchy

(when a child makes an error on a targeted word, phrase, etc.)

Just look at child with non-understanding.

Provide a touch cue, visual prompt, or sign without any accompanying verbal hint.

Respond with a verbal hint such as: (1) "You forgot your... sticky." (2) "Where's the...friend?" (3) "I didn't hear any...wind."

Provide minimum to maximum cueing depending upon child's response to the above strategies.

Cueing Hierarchy

1. (Sign) + full verbal prompt ("ball").
2. (Sign) + first sound cue ("ba").
3. (Sign) + first sound position (pursed lips).
4. (Sign) only

Goal is to fade the cues as soon as possible to allow the child's speech-motor system to "do the work." - enables faster master of the motor plan. This avoids depending upon "I say it...you say it."

Communication Temptations

(with thanks to Donna Ferens, SLP, Children's Hospital of Pittsburgh of UPMC)

- Sometimes it is too easy to have everything your child wants within easy reach. The toys and the toy chest down on the floor encourage clean, organized rooms. Child size furniture and bookcases, filled with high interest books encourage reading. Cup holders in car seats encourage non-distracted driving. All of these things lead to easy access, satisfaction and comfort for your child. However, by anticipating your child's every need, he/she may be missing out on important, frequent opportunities for communication and social interactions throughout the day. In addition, always interpreting or anticipating your child's needs may reduce your child's motivation to communicate. The thoughts of "Mom will get it" or "Dad will help" and "I don't have to talk" become established.
- Instead, to foster language development, it is beneficial to establish "communication temptations" that encourage frequent opportunities for your child to talk. You will need to make the temptations so motivating and the events so worth the effort that your child will want to communicate immediately or find you wherever you are. What will your child learn in the process? He/she will learn appropriate attention behaviors, new vocabulary, manners (please/thank you), and simple conversational turn taking skills. However, the most important lesson is that "It is great to talk to mom/dad!"
- Communication temptations consist of placing high interest items in view but out of the child's reach such as cookies on top of the refrigerator or a favorite toy on the top shelf. You can also create "obstacles" by removing the batteries to a favorite toy or accidentally standing in front of the television during his/her favorite show. Pretend your body is "broken" and can't reach the desired toy or object. Pretend you don't see your child pointing to the cookies and wait. Create an unexpected surprise by handing your child a sock instead of the juice cup during snack time. Keep high interest toys in a see-through container that your child can't open without requesting help. These techniques are especially effective in eliciting verbalizations.
- Decide in advance what will be an acceptable response from your child during the temptation event. Will it be a gesture, a word or a whole sentence/question? You will need to select words or actions that are within your child's interests and abilities. Children don't learn to use complete sentences overnight. They learn language first through everyday experiences, followed by comprehension, and finally expression. For example, cookies are placed on the refrigerator (communication temptation), your child may think "Oh mom will give me

a cookie when I point”, which eventually can promote a verbal request such as “Mom may I have a cookie please?” (conversation opportunity.)

- If your child becomes frustrated and begins to use maladaptive behaviors such as crying, grabbing, or tantruming, immediately provide an acceptable form of communication. For example: “I see you want the cookie. Point to it and I will give it to you.” After handing your child the cookie, you can add the comment “Next time you could tell me...” to help establish that verbal communication is the eventual expectation. Once your child consistently uses an acceptable form of communication, an older sibling or another adult can model a more advanced response during the next communication temptation event.
- Every time you create a communication temptation you can build your child’s anticipation and his opportunity for a turn by waiting approximately 5 seconds. This brief wait time allows the opportunity for your child to request, ask a question, comment, or bring something new to the conversation.
- Providing communication temptations in everyday routines allows your child to engage in a balanced conversation throughout the day. You will empower your child to use his new skills successfully. The opportunities provided by communication temptations are key to fun conversational interactions and language development.

WHAT'S WRONG? Football and Tennis Sentences

1	2	3	Sentences
			The tennis player hit the ball under the net, and scored a point.
			The safety tackled the linebacker in the fourth quarter.
			I served the ball in the back square, and got an ace.
			The quarterback threw a punt to the wide receiver.
			He used his racket to make a birdie putt on the fourth hole.
			The Steelers beat the Chargers with a score of 50-love.
			Tennis racket strings are made out of yarn and are very durable.
			The score at the end of the third quarter was Browns-5, Broncos-1.
			Andy Roddick won the Super Bowl after a tough match.
			The Baltimore Coach caught the quarterback's great pass and ran 40 yards.
			After the football game, the coach said to put away our rackets.
			The football trainer ran onto the field to put air in the football.
			The player in the chair called the serve out of bounds.
			At training camp, football players try to learn how to dribble the football.
			There are 6 players on a tennis doubles' team.
			In flag football, hard tackles are permitted as long as you say, "I'm sorry."
			Tennis players are allowed four bad serves before they lose a point.
			The quarterback jumped over the net at the end of the tiring match.
			Tennis players are not in very good shape since they don't need to run much.
			The Heisman Trophy is awarded to the best professional football player.
			Total

WHAT'S WRONG? Baseball and Soccer Sentences

1	2	3	Sentences
			The forward kicked the ball out of bounds and the defender scored.
			In the top of the third inning, we scored a run after the other team scored four.
			The midfielder really hit the soccer ball hard with his right hand for a great pass.
			Robbie hit a home run but only got to third base.
			The other goalie scored four goals while playing on the front line.
			Either the first baseman or the left fielder will catch the fly ball.
			The soccer referee said we scored a touchdown on Saturday.
			The catcher threw a curve ball, but the pitcher dropped it and the runner was out.
			The crowd cheered when the soccer ball hit the other team's basket.
			Our right fielder ran all the way to fourth base during a game on Thursday.
			Soccer is a slow sport, where running is not permitted.
			Shortstops play between right field and first base.
			There are four goal keepers in each goal for every game in soccer.
			If the other team scores a run, our team will kick a field goal.
			All soccer players wear helmets to protect their heads.
			There are four outs allowed in extra inning games until the fourteenth inning.
			If you score a goal in soccer it is worth 3 points unless it is scored by a defender.
			The first baseman threw the umpire out of the game for arguing.
			Soccer balls are made out of rubber so they can bounce high to reach the basket.
			Baseball managers are allowed to play right field if the right fielder needs a rest.
			Total

Suggested Apps (special thanks to Pooja Aggarwal, Progressive Speech Tx)

Apraxia Ville – sound windows – cartoon avatar making sounds and window for children to make their own video of sounds

Speechprompts – targets prosody, rate, rhythm, stress, and loudness

Smarty Ears - r intensive – has an r diagnostic

Pocket SLP Articulation

VAST – video modelling of syllables, words, phrases, and sentences

NACD: National Association for Child Development Apraxia – moves from mass to distributed practice and blocked to random – nonspeech words and no phrases or sentence

Vowel Viz – biofeedback for tongue position on vowel quadrilateral – can use for vocalic /r/ - helpful to train child's and parents' ears

Ipractice verbs – pictures of verbs can choose verbs and tense but has verb written on corner

TalkingTom – imitates what he hears said

Icommunicate – record voice like on old language masters

Wheels on the Bus – gets child to figure out he/she has control over device

Fireworks – low level – when child touches screen, creates fireworks – can target expressions or words like “wow” and “pop”

Signing Time – has activities for kids and video of each sign more appealing to kids, smart hands – has video of each sign

Splashtop - download software onto your laptop and makes it a touchscreen – have to be online – desktop sharing, can use your software on the ipad

Iprompts – has ready-made social stories e.g. communicating without words, shows the gestures for yes/IDK, schedules – customizable

Reading Rockets for literacy

Pictello – create visual stories

VASTAutism 1 – free – can see zoom in of oral movements, you go through the list of words, can't select words, can scroll through words, phrases

Selected References on “Childhood Apraxia of Speech” and Speech Sound Disorders

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- 1) “Encoding, Memory, and Transcoding Deficits in Childhood Apraxia of Speech”, by Shriberg, et al, Clinical Linguistics and Phonetics, May 2012.
- 2) “Here’s How to Treat Childhood Apraxia of Speech”, Margaret (“Dee”) Fish, 2010, www.pluralpublishing.com or www.amazon.com.
- 3) “A Review of Standardized Tests of Nonverbal Oral and Speech Motor Performance in Children”, by Rebecca J. McCauley and Edythe A. Strand, American Journal of Speech-Language Pathology, Vol. 17, Feb 2008, pp. 81-91.
- 4) “Clinical Management of Motor Speech Disorders in Children, edited by Dr. Anthony J. Caruso and Edythe A. Strand, Thieme, New York, 1999.
- 5) Childhood Apraxia of Speech ASHA AdHoc Technical Report and Position Statement, 2007, www.asha.org or www.apraxia-kids.org.
- 6) “Apraxia Case Study – Increasing speech intelligibility and phonemic awareness skills”, by Lila Carson, et al, in the March 20, 2006 edition of ADVANCE for SLP’s and Audiologists
- 7) “A Systematic Review of Treatment Outcomes for Children With Childhood Apraxia of Speech”, Elizabeth Murray, Patricia McCabe, and Kirrie J. Ballard, American Journal of Speech-Language Pathology, 2014, pp 1-19.
- 8) “Five Reasons Why Nonspeech Oral Motor Exercises (NSOME) Do Not Work” by Gregory L Lof and Maggie Watson in ASHA Perspectives on School-Based Issues, December 2010, Vol 11, No 4, pp 109-117.
- 9) “A Motor Speech Assessment for Children with Severe Speech Disorders: Reliability and Validity Evidence”, by Edy Strand, et al, J Speech Lang Hear Res. 2012, Dec 28.
- 10) “Principles of Motor Learning in Treatment of Motor Speech “, Edwin Maas, et al, American Journal of Speech-Language Pathology, Vol. 17, August 2008, pp. 277-298.
- 11) “School-Age Follow-Up of Children With Childhood Apraxia of Speech, Dr. Barbara Lewis, et al., Language, Speech, and Hearing Services in Schools, Vol 35, April 2004, pp. 122-140.
- 12) “What Factors Place Children With Speech Sound Disorders at Risk for Reading Problems?” Jason L. Anthony, et al, American Journal of Speech-Language Pathology, Vol. 20, May 2011, pp. 146-160
- 13) “Nobody Ever Told Me (or My Mother) That! – Everything from Bottles and Breathing to Healthy Speech Development”, Diane Bahr, 2010, available on-line through Amazon.com, Sensory World, or [Future Horizons, Inc.](http://Future Horizons, Inc)
- 14) “Lessons by Abigail: Educating a Seasoned Speech-Language Pathologist named Mom”, in the Jan/Feb 2003 edition of Disability Solutions, pp. 1-15 or through Apraxia-kids.org.

Selected Therapy Resources
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“Time to Sing” Children’s CD

- ❖ Apraxia-kids.org

“Moving Across Syllables-Training Articulatory Sound Sequences” by Kirkpatrick, et al.

- ❖ The Psychological Corporation at www.psycorp.com

“Captain Hammer & Super Sean – The Case of the Missing G” by Freiburger and Clark

- ❖ Apraxia-kids.org

“Do-A-Dot Markers”

- ❖ Do-A-Dot Art at www.dotart.com

“Build-A-Sentence”

- ❖ Amazon.com

“DOT Articulation” by Rachele Ellsworth

- ❖ www.speechcorner.com

“Easy Does It For Apraxia of Speech-Preschool” by Robin Strode and Catherine Chamberlain

- ❖ www.linguissystems.com

“Sign Language Resources”

- ❖ www.signingtime.com , www.signingsavvy.com , www.lifeprint.com

Heathfield Adjustable Chair with Tray

- ❖ www.disabilitysupplies.com

Marvel Magnet Alphabet Set – Marvel Education Company, New York, NY

- ❖ www.cptoy.com (go to Constructive Playthings not US Toys)

Deluxe Therapy Mirror and Kit or Speech-Teach Portable Mirror

- ❖ www.schoolhealth.com/earlychildhood
- ❖ www.dysphagiaplus.com