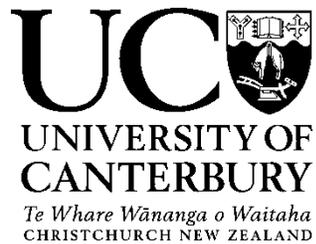


Phonological Awareness Workshop Handout

Phonological awareness: Enhancing early literacy success

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Workshop Handout: Phonological Awareness interventions

Effective practices for class teachers

The primary purpose of facilitating children's phonological awareness is to assist children in being able to efficiently decode written words so they can focus on accessing the meaning of written text. There is little benefit in being able to identify sounds in words as an isolated task. Rather, the benefit of improved phonological awareness is to assist the child in using phonological cues and knowledge of how speech relates to print when reading and spelling. Thus, it's important that the transfer of skills from a specific phonological awareness activity to reading and writing is made explicit for the child. Evidence that a child is benefiting from engaging in phonological awareness activities is gained when the child demonstrates the ability to use phonological cues when decoding words in print and in spelling words when writing. The suggestions below are based on research evidence from well designed experimental studies (See Gillon, 2004 for a review of the research and additional references below for more recent examples of the research evidence).

Effective practices in phonological awareness interventions include:

1. Hearing and vision are checked or appropriate referrals made for any child struggling in early literacy development.
2. Specific phonological awareness intervention (e.g., small group or individual intervention) is based on a child's assessment data or known risk factors for persistent difficulty in learning to read. (Children with spoken language impairments, for example, are 4 or 5 times more likely to have reading difficulty than children with typical spoken language development).
3. Phonological awareness activities proven effective in facilitating children's phonological awareness development are implemented.
4. Instruction focuses predominantly at the phoneme level (e.g., phoneme identity, phoneme segmentation, phoneme blending and phoneme manipulation tasks).
5. Letter -sound and letter name knowledge is integrated into phonological awareness activities.
6. Transfer of phonological awareness skills to reading and spelling is explicitly encouraged.
7. Data are collected to determine intervention effectiveness.
8. Frequent short periods of structured and explicit phonological awareness intervention may accelerate learning to a similar extent than longer periods of instruction over a prolonged period.
9. The child's ability to use phonological awareness knowledge in the reading and spelling process is carefully monitored
10. Phonological awareness activities are planned for differing contexts (eg whole class, small group, individual, home context) and include activities that are culturally appropriate.

A guide to adjusting phonological awareness task difficulty

Source: Gillon, G. (2004). *Phonological Awareness: From research to practice.*

Task type	Easier level	→	More challenging level
Syllable segmentation	Segmenting two syllable familiar words (e.g. teddy).	Segmenting 3 and 4 syllable familiar words such as (e.g., elephant caterpillar).	Segmenting unfamiliar multi-syllabic words (e.g., anatomy).
Rhyme	Rhyme recognition tasks (e.g., Do these words rhyme car/tar?).	Rhyme odd one out tasks (e.g., Which one doesn't rhyme: mat sun cat?).	Rhyme generation tasks (e.g., Tell me all the words that rhyme with bat).
Phoneme identity	Identifying phonemes in the initial position of single syllable words.	Identifying phonemes at the end of single syllable words.	Identifying phonemes in the middle of words.
Blending	Blending onset and rimes c- at = cat (pictures of a cat, hat, and car).	Blending phonemes to form single syllable words without blends (e.g., d- o- g).	Blending phonemes to form non-words and words with blends (e.g. s-t-o-p; v- a-p-t)
Segmentation	Segmenting onset- rime units.	Segmenting words with 2 and 3 phonemes at the phoneme level.	Segmenting words with 4 or 5 sounds including words with blends.
Sound deletion tasks	Deletion at the whole word and syllable level (e.g., say birthday without the day).	Phoneme deletion task that results in a real word (e.g., say part with the /p/ sound = art).	Phoneme deletion of non-words and words involving blends (e.g., say step without the t sound).
Identifying and describing phoneme changes	Analysis tasks using common rhyming patterns (e.g., identifying that the first sound is changing in cat hat, mat, sat).	Stimulus items involving 2- and 3-phoneme words with wide sound contrasts (e.g. identify the last sound changes in art to arm).	Stimulus items with narrow sound contrast (e.g., tug to dug) and medial vowel changes (e.g. sat to sit). Phoneme changes involving blends (e.g., stop to slop).
Speech to print matching	Stimulus items that involve one phoneme matching to one letter. Isolated level (e.g., b d t m n) and word level (e.g., mat, top, bun).	Stimulus items involving diagraphs- two letters map to one sound. Isolated level (e.g., sh th ch) word level (e.g., shop, teeth, chip).	Stimulus items involving complex connections such as one phoneme to multiple graphemes phoneme (e.g. f, ph, ff; er, ir,ur).

Intervention examples for group or class activities

Large book activity.

Read a large storybook to the class and then work through the book using the pictures for stimulus words to develop phoneme awareness. Select nouns from the story and identify the number of sounds in the word (phonemes, not letters). Ask the children to clap out the sounds and then say the word together.

Teacher: *“This story is about a cat. Let’s listen to the sounds that make up the word cat. c-a-t cat. Cat starts with a /k/ sound. Let’s clap the number of sounds in the word cat as we say the sounds: c-a-t (3 claps). Here is a picture of a dog. Let’s clap out the sounds in the word dog: d-o-g (3 claps saying the sounds as you clap hands). Dog starts with a /d/ sound.*

Give the class plenty of examples and then ask children to clap out the sounds in words and identify the sound the word starts with. Initially select words with two or three phonemes and then move to four. Remember that clusters such as pl, bl, tr have two sounds (e.g. t-r-ai-n = 4 phonemes, 4 claps). Ch, sh and th are one sound (e.g. ch-ur-ch = 3 sounds 3 claps). As the children become better at identifying the initial sound, ask the children to identify the last sound in the word. Be sure that all the children know the concepts of first and last.

Class inquiry activities

Build up a series of large colourful pictures around a class inquiry topic to use in phoneme segmentation and phoneme identity activities.

Example: Inquiry topic- learning about people’s occupations

Phoneme segmentation and sound symbol (phoneme- grapheme) association.

Choose single-syllable words associated with the class theme

Teacher: *Here is a picture of a doctor. A doctor helps sick people. Let’s listen to the word sick. Clap out the sounds in the word sick: s-i-ck (3 claps). Sick starts with a /s/ sound. This letter makes a /s/ sound (pointing to the letter s on the board). Let’s read the sentence together: “A doctor helps sick people”...the teacher draws attention to the word sick when reading or asks children to identify the word in the sentence.*

In this picture the nurse is giving the man his medicine. Let’s clap out the sounds in the word nurse: n-ur-se. Yes, I heard three sounds in nurse. What about the word man? m-a-n (3 claps). Great, I heard three sounds in man: m-a-n. Let’s write a sentence together about the picture- the teacher encourages the children to use phoneme segmentation and phoneme identity skills when attempting to spell words in the writing task and models the use of phonological cues to assist spelling.

Phoneme identity

Teacher: *Here is the letter d it makes a /d/ sound (pointing to the letter d on the board). Let’s think of different occupations that start with a /d/ sound: doctor, dentist, driver, dancer, director.*

Here is the letter t. It makes a /t/ sound. Can anyone think of an occupation that starts with a /t/ sound?: teacher, tennis player, truck driver (prompt as necessary with pictures). Integrate Maori

vocabulary as appropriate. *I know another name for teacher that starts with a /k/ sound...Kaiako. Listen to the sounds in kaiako – k- ai –a- k – o. Hear how kaiako starts with the /k/ sound. Help me write the word kaiako on the board—*The teacher segments the word slowly while writing the word.

- Phoneme manipulation

Glue magnets onto the back of the wooden letter blocks or cards to use on a white board, or use a marker and white board in a phoneme manipulation word activity. Ask the children to sit on the mat in front of the board where the letters are displayed. Its an easier task if graphemes are displayed on the blocks or letter cards- eg *sh* on one card; *ee* on another card to represent the long e vowel.

Choose a group of consonants and vowels that most children understand the grapheme-phoneme relationship to display on the board (or teach the children the names of a few letters and sounds if necessary). Initially choose 3 or 4 consonants and a couple of vowels that will allow a variety of words and syllables. Gradually extend the group of letters as the children’s knowledge of consonants and vowel sounds expands.

For example: use m ch f a ee t p

Teacher: *This letter says /a/ (short a sound) and this letter says /t/ (pointing to the appropriate letters). If I put them together I make the word at.*

If that says at, Lewis can you come up and make the word mat.

Child: Child places m at the end of the word

Teacher: *Good try, you heard the right sound, but let’s check where we hear the /m/ sound... mmmat.*

Child: corrects error with teacher’s prompts and says *mat*

Teacher: *Great, you added the letter m to the front.*

Teacher: *Connell, if that says mat can you come up and show me fat.*

Child: changes the first letter and says: *fat,*

Teacher: *Excellent, you changed the first sound*

Teacher: *If that says fat, Hemi can you show me feet.*

Teacher prompt: *This block here says ee (pointing to the ee block).*

Child: changes the middle phoneme and says: *feet.*

Teacher: *Well done, you changed the middle sound*

Teacher: *If that says feet, Grace can you show me meet.*

Child: changes the first letter and says, *meet, the first sound changed*

Teacher: *Good work Grace you made the word meet.*

I can think of a sentence that uses the word meet..... I like to meet my friends at the shops. Can you think of another sentence that uses this word meet?

Continue in this manner prompting the children as necessary. If the child does not know a letter, show the child the letter and say the sound. Then ask the child to put the letter in the correct place to form the new word. Avoid turning the activity into a guessing game with the child wildly guessing at letters to choose. Rather, simply tell the child the letter block required and the sound the letter makes.

Ask the child to check that the written form matches the spoken form. If, for example, the child puts out *mad* for *mat* say: *Let’s check that we’ve got a match mmaaadd - (pointing to each letter as you say*

the sounds). *Mad - does that match what I said- mattt* (emphasising the last sound) encourage the child to self correct or give further prompts until she/he realises where the error has been made.

If the child is not sure of the vowel sound ask the child to identify where the sound changed (e.g. the middle sound changed) and tell the child the sound of the vowel. Use a variety of combinations at the two and three phoneme level. For example: Sound deletion - *If that says mop show me op... What happened?... Yes the first sound was taken away.* Addition: *If that says it show me fit.... Yes we added a sound to the beginning.*

Materials

Phonological awareness activity materials used in the Gillon and Gillon et al research projects are now available free for teachers to download if used for educational purposes. The activities were designed for small group or individual activities for children struggling in their early reading development or for young children with known risk factors for reading difficulties. However, the activity ideas can be adapted to larger groups or class activities. These resources can be accessed under Phonological resources through Gail Gillon's webpage via The College of Education, University of Canterbury <http://www.education.canterbury.ac.nz/people/gillon/>

The research references for these materials are:

- Gillon, G. (2005). Facilitating phoneme awareness in 3-4 year old children with speech impairment. *Language, Speech, and Hearing Services in Schools, 36*, 308-324.
- Gillon, G. (2000). The Efficacy of Phonological Awareness Intervention for Children with Spoken Language Impairment. *Language, Speech, and Hearing Services in Schools, 31*, 126-141.
- Gillon, G., Moran, C., Hamilton, E., Zens, N., Bayne, G., & Smith, D. (June, 2007). Phonological Awareness Treatment Effects for Children from Low Socio-economic Backgrounds. *Asia Pacific Journal of Speech Language and Hearing, 10* (2)
- McNeil, B. C., Gillon, G. T., & Dodd, B. (2009). The effectiveness of an integrated phonological awareness approach for children with childhood apraxia of speech (CAS). *Child Language Teaching and Therapy, 25*(3), 341-366.
- Bysterveldt, A., Gillon, G. T., & Foster-Cohen, S. (in press). Integrated speech and phonological awareness intervention for pre-school children with Down syndrome. *International Journal of Language and Communication Disorders. 45*(3), 320-333
<http://dx.doi.org/10.3109/13682820903003514>.

Integrating Maori vocabulary into phonological awareness activities

Below is the website site for 100 common Maori words with sound files for correct pronunciation. Use these common words in phonological awareness activities for listening to sounds at the beginning of words and for syllable segmentation work for the multi-syllabic words. Teach children the meaning of the words concurrently. Words that are unfamiliar to the children are great for ensuring that they are really listening to the sounds within words and more complex unfamiliar words are an excellent way to challenge children within the class who have strong phonological awareness skills.

<http://www.nzhistory.net.nz/culture/maori-language-week/100-maori-words>

For example: “Today we have been talking about our families. Let’s listen to some Maori words that all start with a /t/ sound. I’m going to write the word Tama on the board- what sound does tama start with? What letter makes that sound- what is the next sound we hear in Tama...etc”

- [Tama](#) son, young man, youth
- [Tamāhine](#) daughter
- [Tamaiti](#) one child
- [Tamariki](#) children
- [Tāne](#) man, husband, men, husbands
- [Teina/taina](#) junior relative, younger brother of a brother, younger sister of a sister
- [Tipuna/tupuna](#) ancestor

“What about the word wāhine - does wāhine start with a /t/ sound? No what sound does wāhine start with? Let’s clap out the syllables we hear in the word wāhine....”

- [Wahine](#) woman, wife (wāhine women, wives)

Group activity example related to inquiry topic

Inquiry Topic: Solar System	Group Phoneme Awareness Activities			
Target Words (select single syllable words) <ul style="list-style-type: none"> • Sun • Moon • Star • Shine • Space • Mars • Gas • Ring 	Phoneme Identity <i>Resources required:</i> Large pictures of target words placed up on the board. <ol style="list-style-type: none"> 1. Familiarise children with the words associated with the pictures. 2. <i>Teacher:</i> 'I spy with my telescope something beginning with..s (insert speech sound). Students then identify a word that corresponds to the clue. 3. Students can then take turns at being the teacher's helper: 'I spy with my telescope something beginning with....'. <p>Note: To increase the activity's complexity, use clues looking for words with particular final/middle sounds.</p>	Segmentation and Blending Divide the class into small groups with a buzzer or bell <i>Phoneme Segmentation</i> <ol style="list-style-type: none"> 1. The teacher says a target word associated with the inquiry topic e.g., "sun". 2. Each group works together to segment the word into phonemes / s---u---n/ 3. Each group 'buzzes' once they have an answer. 4. Responses are reported back to the class once all groups have come up with an answer. "sun: s- u -n, sun" 5. The spokesperson for each group changes each time to allow all students to gain experience in the task. <i>Phoneme Blending</i> Follow the format above, but the teams blend sounds to form a target word.	Phoneme Manipulation <ol style="list-style-type: none"> 1. Display target pictures on the board. 2. <i>Teacher:</i> 'I am going to say the name of a picture. There is one trick to this game. When I say the name, I am <u>not</u> going to say the first sound of the word. Okay, ready? I see an "oon" in this picture. Who knows what I am looking at?' 3. <i>Children respond by pointing to the picture of a moon</i> 4. Great! What was the missing sound in 'oon'? 5. If children are doing well, give them a chance to be the 'teacher' in the activity. 	Speech to Print During shared writing, work together to spell some of the target words. <ol style="list-style-type: none"> 1. Work together to identify the sounds in the word (e.g., m-oo-n). 2. Draw an empty box on the board for each sound that is identified in the word. <div style="display: flex; justify-content: space-around; width: 100px;"> <div style="border: 1px solid black; width: 30px; height: 30px;"></div> <div style="border: 1px solid black; width: 30px; height: 30px;"></div> <div style="border: 1px solid black; width: 30px; height: 30px;"></div> </div> 3. Say each sound in isolation as you point to each box. 4. Select students to come up the front and write the letter/s that correspond to each sound in the word in the appropriate box. <div style="display: flex; justify-content: space-around; width: 100px; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px;">m</div> <div style="border: 1px solid black; padding: 2px;">oo</div> <div style="border: 1px solid black; padding: 2px;">n</div> </div> 5. Say the word "moon" together as you read the word.

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Web page: Look under phonological resources for free programme activities

<http://www.education.canterbury.ac.nz/people/gillon/>

Phonological awareness assessment website
http://www.newzealandphonologicalawarenessdatabase.com/Karyn_App/oakwood/about.php
Also See Appendix A from Karyn Carson's thesis -classroom phonological awareness programme examples: tasks adapting task difficulty (page 328 of thesis)
http://ir.canterbury.ac.nz/bitstream/10092/6683/1/thesis_fulltextpdf.pdf

References to Gillon and Colleagues' recently published research in language and literacy conducted in a New Zealand context.

1. Gillon, G. (2000). The Efficacy of Phonological Awareness Intervention for Children with Spoken Language Impairment. *Language, Speech, and Hearing Services in Schools*, 31, 126-141.
2. Gillon, G. T. (2002). Follow-up study investigating benefits of phonological awareness intervention for children with spoken language impairment. *International Journal of Language and Communication Disorders*, 37(4), 381-400.
3. Gillon, G. (2005). Facilitating phoneme awareness development in 3-and 4-year-old children with speech impairment. *Language, Speech, and Hearing Services in Schools*, 36, 308-324.
4. Gillon, G. (2006). Phonological awareness Intervention: A preventative framework for preschool children with specific speech and language impairments. In R. McCauley & M. Fey (Eds.), *Treatment of language disorders in children* (pp. 279-308). Baltimore, MD: Paul H. Brookes.
5. Gillon, G., Clendon, S., Cupples, L., Flynn, M., Iacono, T., Schmidtke., Yoder, D. E., & Young, A. (2004). Phonological awareness development in children with physical, sensory, or intellectual impairment. In G. Gillon (Ed.), *Phonological Awareness: From research to practice*. New York: The Guilford Press.
6. Gillon, G., Moran, C., Hamilton, E., Zens, N., Bayne, G., & Smith, D. (2007). Phonological Awareness Treatment Effects for Children from Low Socioeconomic Backgrounds. *Asia Pacific Journal of Speech Language and Hearing*, 10(2).
7. Gillon, G. T. (2004). *Phonological awareness: From research to practice*. New York: The Guilford Press.
8. McNeil, B. C., Gillon, G. T., & Dodd, B. (2009). The effectiveness of an integrated phonological awareness approach for children with childhood apraxia of speech (CAS). *Child Language Teaching and Therapy*, 25(3), 341-366
9. Gillon, G.T. and McNeill, B.C. (2010) Phonological awareness: Motivating early literacy success. In J. Fletcher, F. Parkhill and G. Gillon (Ed.), *Motivating Literacy Learners in Today's World*: 53-66. Wellington: NZCER Press.
10. Gillon, G.T. and McNeill, B.C. (2009) Effective practices in phonological awareness assessment and intervention. *ACQuiring Knowledge in Speech, Language and Hearing* 11(2): 72-76.
11. Carson, K. L., Gillon, G. T., & Boustead, T. M. (2013). Classroom Phonological Awareness Instruction and Literacy Outcomes In the First Year of School *Language, Speech & Hearing Services in Schools* 44, (2) 147-160
12. McNeill, B.C., Westerveld, M., van Bysterveldt, A., Boyd, L. and Gillon, G.T. (2013) Early name writing and invented spelling development. *New Zealand Journal of Educational Studies* 48(1)
13. McNeill, B.C. and Gillon, G.T. (2013) Expressive morphosyntactic development in three children with childhood apraxia of speech. *Speech, Language, and Hearing* 16(1): 9-17.

14. Carroll, J., Gillon, G.T. and McNeill, B.C. (2012) Explicit Phonological Knowledge of Educational Professionals. *Asia Pacific Journal of Speech, Language, and Hearing* 15(4): 232-244.
15. van Bysterveldt, A.K., Westerveld, M., Gillon, G. and Foster-Cohen, S. (2012) Personal narrative skills of school-aged children with Down syndrome. *International Journal of Language & Communication Disorders* 47(1): 98-105. <http://dx.doi.org/10.1111/j.1460-6984.2011.00085.x>.
16. Carson, K., Gillon, G. and Bousted, T. (2011) Computer-Administrated Versus Paper-Based Assessment of School-Entry Phonological Awareness Ability. *Asia Pacific Journal of Speech Language and Hearing* 14(2): 18pp. (Journal Article)
17. McNeill, B.C., Buckley-Foster, P. and Gillon, G.T. (2011) Supporting children with reading difficulties within the New Zealand English curriculum. *Support for Learning: British Journal of Learning Support* 26(3): 115-121. <http://dx.doi.org/10.1111/j.1467-9604.2011.01489.x>.
18. Tyler, A. A., Gillon, G., Macrae, T., & Johnson, R. L. (2011). Direct and Indirect Effects of Stimulating Phoneme Awareness vs. Other Linguistic Skills in Preschoolers With Co-occurring Speech and Language Impairments. [Article]. *Topics in Language Disorders*, 31(2), 128-144. <http://doi: 10.1097/TLD.0b013e318217d473>
19. van Bysterveldt, A.K., Gillon, G. and Foster-Cohen, S. (2010) Integrated speech and phonological awareness intervention for pre-school children with Down syndrome. *International Journal of Language & Communication Disorders* 45(3): 320-335. <http://dx.doi.org/10.3109/13682820903003514>.
20. van Bysterveldt, A., Gillon, G. and Foster-Cohen, S. (2010) Literacy environments for children with Down syndrome: What's happening at home? *Down Syndrome Research and Practice* 12(2): 98-102. <http://www.down-syndrome.org/reports/2111/>.
21. Fletcher, J., Parkhill, F. and Gillon, G. (Ed.) (2010) *Motivating Literacy Learners in Today's World*. Wellington: NZCER Press. 148pp.
22. Westerveld, M.F. and Gillon, G.T. (2010) Profiling oral narrative ability in young school-aged children. *International Journal of Speech-Language Pathology* 12(3): 178-189. <http://dx.doi.org/10.3109/17549500903194125>.
23. McNeill, B., Gillon, G.T. and Dodd, B. (2009) A longitudinal case study of the effects of an integrated phonological awareness program for identical twin boys with childhood apraxia of speech (CAS). *TASL: International Journal of Speech-Language Pathology* 11(6): 482-495. <http://dx.doi.org/10.3109/17549500902842583>.
24. McNeill, B.C., Gillon, G.T. and Dodd, B. (2009) Effectiveness of an integrated phonological awareness approach for children with childhood apraxia of speech (CAS). *Child Language Teaching and Therapy* 25(3): 341-366. <http://dx.doi.org/10.1177/0265659009339823>.

25. Zens, N., Gillon, G.T. and Moran, C. (2009) Effects of phonological awareness and semantic intervention on word-learning in children with SLI. *International Journal of Speech-Language Pathology* 11(6): 509-524.
26. McNeill, B.C., Gillon, G.T. and Dodd, B. (2009) Phonological awareness and early reading development in childhood apraxia of speech (CAS). *International Journal of Language and Communication Disorders* 44(2): 175-192. <http://dx.doi.org/10.1080/13682820801997353>.
27. Westerveld, M.F., Gillon, G.T. and Moran, C. (2008) A longitudinal investigation of oral narrative skills in children with mixed reading disability. *International Journal of Speech-Language Pathology* 10(3): 132-145. <http://dx.doi.org/10.1080/14417040701422390>.
28. Maclagan, M., King, J. and Gillon, G. (2008) Maori English. *Clinical Linguistics & Phonetics* 22(8): 658-670. <http://dx.doi.org/10.1080/02699200802222271>. (
29. Gillon, G.T. and Moriarty, B.C. (2007) Childhood Apraxia of Speech: Children at Risk for Persistent Reading and Spelling Disorder. *Seminars in Speech and Language* 28(1): 48-57.
30. Sutherland, D. and Gillon, G. (2007) Development of phonological representations and phonological awareness in children with speech impairment. *International Journal of Language & Communication Disorders* 42(2): 229-250. <http://dx.doi.org/10.1080/13682820600806672>.
31. Kirk, C. and Gillon, G.T. (2007) Longitudinal Effects of Phonological Awareness Intervention on Morphological Awareness in Children With Speech Impairment. *Language, Speech and Hearing Services in Schools* 38(4): 342-352. [http://dx.doi.org/10.1044/0161-1461\(2007/036\)](http://dx.doi.org/10.1044/0161-1461(2007/036)).
32. Moriarty, B.C. and Gillon, G.T. (2006) Phonological awareness intervention for children with childhood apraxia of speech. *International Journal of Language and Communication Disorders* 41(6): 713-734. <http://dx.doi.org/10.1080/13682820600623960>.
33. Hamilton, E. and Gillon, G. (2006). The phonological awareness skills of school-aged children who are bilingual in Samoan and English. *Advances in Speech-Language Pathology* 8(2): 57- 68. <http://dx.doi.org/10.1080/14417040600632529>.
34. Sutherland, D., & Gillon, G. T. (2005). Assessment of phonological representations in children with speech impairment. *Language, Speech, and Hearing Services in Schools*, 36, 294-307.

Other references and suggested readings

- Al Otaiba, S., Puranik, C. S., Ziolkowski, R. A., & Montgomery, T. M. (2009). Effectiveness of Early Phonological Awareness Interventions for Students with Speech or Language Impairments. *Journal of Special Education, 43*(2), 107-128. doi: 10.1177/0022466908314869
- Burgess, S. R., & Lonigan, C. J. (1998). Bidirectional relations of phonological sensitivity and prereading abilities: Evidence from a preschool sample. *Journal of Experimental Child Psychology, 70*(2), 117-141.
- Carroll, J., & Snowling, M. (2004). Language and phonological skills in children at high risk of reading difficulties. *Journal of Child Psychology and Psychiatry, 45*(3), 631-640.
- Cataldo, S., & Ellis, N. (1988). Interactions in the development of spelling, reading and phonological skills. *Journal of Research in Reading, 11*, 86-109.
- Cooper, D. H., Roth, F. P., Speece, D. L., & Schatschneider, C. (2002). The contribution of oral language skills to the development of phonological awareness. *Applied Psycholinguistics, 23*(3), 399-416.
- Duncan, L. G., & Johnston, R. S. (1999). How does phonological awareness relate to nonword reading skill amongst poor readers? *Reading and Writing, 11*(5-6), 405-439.
- Ehri, L. C., Nunes, S. R., Willows, D. M., Schuster, B. V., Yaghub-Zadeh, Z., & Shanahan, T. (2001). Phonemic Awareness Instruction Helps Children Learn To Read: Evidence from the National Reading Panel's Meta-Analysis. *Reading Research Quarterly, 36*(3), 250-287.
- Frost, J. (2001). Phonemic awareness, spontaneous writing, and reading and spelling development from a preventive perspective. *Reading and Writing: An Interdisciplinary Journal, 14*(5-6), 487-513.
- Hogan, T., Catts, H., & Little, T. (2005). The relationship between phonological awareness and reading: Implications for the assessment of phonological awareness. *Language, Speech, and Hearing Services in Schools, 36*, 285-293.
- Hulme, C., Hatcher, P., Nation, K., Brown, A. M., Adams, J. W., & Stuart, G. (2002). Phoneme awareness is a better predictor of early reading skill than onset-rime awareness. *Journal of Experimental Child Psychology, 82* (1), 2-28.
- Hulme, C., Bowyer-Crane, C., Carroll, J. M., Duff, F. J., & Snowling, M. J. (2012). The Causal Role of Phoneme Awareness and Letter-Sound Knowledge in Learning to Read: Combining Intervention Studies With Mediation Analyses. *Psychological Science, 23*(6), 572-577. doi: 10.1177/0956797611435921
- Justice, L. M., & Ezell, H. K. (2004). Print referencing: An emergent literacy enhancement strategy and its, clinical applications. *Language Speech and Hearing Services in Schools, 35*(2), 185-193.
- Nancollis, A., Lawrie, B., & Dodd, B. (2005). Phonological awareness intervention and the acquisition of literacy skills in children from deprived social backgrounds. *Language, Speech, and Hearing Services in Schools, 36*, 325-335.
- National Reading Panel. (n.d.). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction*. Retrieved from http://www.nichd.nih.gov/publications/nrp/upload/smallbook_pdf.pdf
- Nathan, L., Stackhouse, J., Goulandris, N., & Snowling, M. (2004). The development of early literacy skills among children with speech difficulties: A test of the "critical age hypothesis". *Journal of Speech, Language and Hearing Research, 47*, 377-391.
- Rvachew, S., Ohberg, A., Grawburg, M., & Heyding, J. (2003). Phonological awareness and phonemic perception in 4-year-old children with delayed expressive phonology skills. *Language Speech and Hearing Services in Schools, 12*, 463-471.
- Scarborough, H. (1998). Early identification of children at risk for reading disabilities: Phonological awareness and some other promising predictors. In B. K. Shapiro & P. J. Accardo & A. J.

- Capute (Eds.), *Specific Reading Disabilities: A view of the spectrum* (pp. 75-119). Timonium, MD: York Press.
- Senechal, M., & Young, L. (2008). The effect of family literacy interventions on children's acquisition of reading from kindergarten to grade 3: A meta-analytic review. *Review of Educational Research*, 78(4), 880-907.
- Shapiro, L., & Solity, J. (2008). Delivering phonological and phonics training within whole-class teaching. *British Journal of Educational Psychology* (2008), 78, 597–620
- Snowling, M., Bishop, D. V. M., & Stothard, S. E. (2000). Is preschool language impairment a risk factor for dyslexia in adolescence? *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 41(5), 587-600.
- Torgesen, J., Wagner, R., & Rashotte, C. (1994). Longitudinal studies of phonological processing and reading. *Journal of Learning Disabilities*, 27, 276-286.
- Tunmer, W. E., Herriman, M. L., & Nesdale, A. R. (1988). Metalinguistic Abilities and Beginning Reading. *Reading Research Quarterly*, 23(2), 134-158.
- Wren, Y Hambly, H Roulstone, S (2012). A review of the impact of bilingualism on the development of phonemic awareness skills in children with typical speech development. *Child Language Teaching and Therapy* 29(1) 11–25.
- Ukrainetz, T. A., Ross, C. L., & Harm, H. M. (2009). An Investigation of Treatment Scheduling for Phonemic Awareness with Kindergartners Who Are at Risk for Reading Difficulties. *Language Speech and Hearing Services in Schools*, 40(1), 86-100.

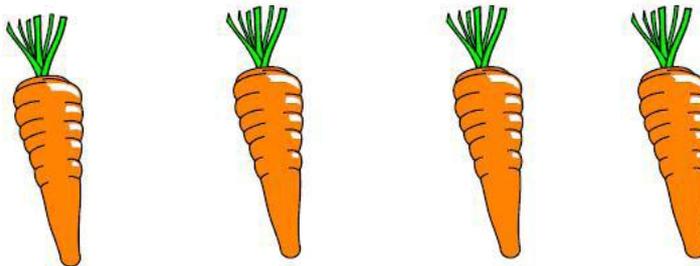
Appendix: Classroom Phonological Awareness Programme Example (From Karyn Carson's doctoral thesis appendix)

This appendix provides an example of classroom phonological awareness (PA) activities used in the experiments reported in Carson, Gillon and Boustead (2013). The classroom PA programme was based on the Gillon Phonological Awareness Training Programme (PAT) (Gillon, 2000b) and was modified for the classroom by drawing on classroom curriculum topics, enlarging resources and providing teachers with activity adaptation charts to address a wide range of PA abilities in the classroom. The original version of the PAT programme is available free to download from:

http://www.education.canterbury.ac.nz/people/gillon/gillon_phonological_awareness_training_programme.shtml

Classroom PA Activity: *Phoneme Segmentation*

Procedure: A segmentation sheet is placed on the white board in front of the children. The teacher holds a small collection of coloured tokens. The following instructions, modified from original PAT programme, are provided:



Gillon PAT Programme: Segmentation and Blending

'..... We have been reading books and learning about animals this week, including farm animals. One animal we can find on a farm is a horse. Here is a picture of a horse. He'd like some carrots to eat. I'll say a word and I want you to show me how many sounds are in the word. We'll give the horse one carrot for each sound we hear. This horse lives in a barn. How many sounds can you hear in the word barn? *B-ar-n* (segmenting the word).' (p. 18, Gillon, 2000b)
The teacher places one coloured token (with velcro attached) per sound onto one carrot below the horse. Each token represents one sound in the word '*Barn*'. The teacher discusses the number of sounds in the target word '*Barn*'. The teacher also writes the word '*Barn*' on the white board to help make the link between speech and print. At least ten target words are presented per activity.

Activity Adaptations: To adapt this activity for a wide range of abilities in the classroom, teachers were provided with an activity adaption chart (see following page). This chart lists the suggested target words for the activity (i.e., words from the original PAT programme and some added for the purposes of this project) and the types of questions teachers can ask to elicit PA knowledge for children of different ability levels. For example, the teacher can ask the child who is learning to identify the first sound in words, 'What is the first sound in *Barn*?' Likewise, the teacher can ask the child who is learning to segment sounds in words to, 'Tell me the sounds you hear in the word *Barn*'. P.330

Activity Adaptation Chart: Phoneme Segmentation Phonological Awareness Stage

Easier Child's level	Identifying the first sound	Identifying the last sound	Harder Blending sounds together to form a word	Breaking a word into sounds	Manipulating sounds to form a new word (with blocks and letter tiles) If this says _____, show me _____.
Target word	<i>Listen for the first sound in _____?</i>	<i>Listen for the last sound in _____?</i>	<i>Guess what word I am saying?</i>	<i>Break up all the sounds in _____.</i>	
VC					
eat	/ea/	/t/	ea-t	eat (ea-t)	eat = meat, seat, sit, sip
CV					
hay	/h/	/ay/	h-ay	hay (h-ay)	hay = bay, may, kay
fur	/f/	/ur/	f-ur	fur (f-ur)	fur = tur, turp, purp
shoe	/sh/	/oe/	sh-oe	shoe (sh-oe)	shoe = show, bow, tow,
CVC					
barn	/b/	/n/	b-ar-n	barn (b-ar-n)	barn = parn, parm, farm,
nose	/n/	/z/	n-o-se	nose (n-o-se)	nose = hose, pose,
food	/f/	/d/	f-oo-d	food (f-oo-d)	food = mood mud, mod,
hoof	/h/	/f/	h-oo-f	hoof (h-oo-f)	hoof = hoop, loop, lip,
horse	/h/	/s/	h-or-se	horse (h-or-se)	horse = hort, port, fort
run	/r/	/n/	r-u-n	run (r-u-n)	run = sun, bun, bunt,
rein	/r/	/n/	r-ei-n	rein (r-ei-n)	rein = run, runs, buns
farm	/f/	/m/	f-ar-m	farm (f-ar-m)	farm = barm, barn, bin
race	/r/	/s/	r-a-ce	race (r-a-ce)	race = rat, bat, bit, bite
CCVC					
trot	/t/	/t/	t-r-o-t	trot (t-r-o-t)	trot = trop, tropes, trips
grass	/g/	/s/	g-r-a-ss	grass (g-r-a-ss)	grass = brass, rass, pass,
CCVCC					
drink	/d/	/k/	d-r-i-n-k	drink (d-r-i-n-k)	drink = rink, mink,