

Action Research Project

Abstract

It is widely identified that many students have phonological awareness problems. This affects their ability to decode words, hence, read accurately, fluently and automatically. Research has shown that instruction in phonological awareness has a significant influence on children's reading ability.

The present study examines the effectiveness of explicit teaching phonological skills of segmenting and blending words, and whether these skills will improve the student's ability to read.

A Year 1 student who has reading difficulties was taught specific skills of segmenting and blending sounds. The student was assessed before, during and after the intervention. The sessions included guided reading and explicit instruction in segmentation and blending strategies to help decode words.

The results indicated that explicit teaching of segmenting and blending sounds into words improved the student's reading of isolated words and in prose. The implication suggests that early intervention and early language experiences can promote the development of phonological awareness for later reading ability.

Introduction

Many students who have experienced reading difficulties in their first year of schooling display problems with phonological awareness. They have difficulties reading words accurately, fluently and automatically. A possible reason for this could be due to their inability to use their phonological knowledge effectively. They are unable to detect, match, blend, segment and manipulate speech sounds.

There have been numerous studies on phonological awareness to detect early reading problems. Phonological skills such as phoneme deletion, blending and segmentation are major obstacles for many emergent readers (Lane et al...2002; Vellutino & Scanlon, 1987; Wagner & Torgesen,1987). Many teaching programs on phonological awareness have targeted these sophisticated skills.

Researchers found that phonological awareness tasks have been shown to be excellent predictors of reading ability or reading disability. That is, children who perform well on tasks of phonological awareness typically are or will become good readers, but children who perform poorly on them are or will become poor readers (Blachman, 1991; Catts, 1991; Torgesen, 1992; cited in Lane et al...2002). Furthermore, in a study by Ball and Blachman (1991), seven weeks of explicit instruction in phonemic awareness combined with explicit instruction in letter-sound correspondences for kindergarten children was more effective than other language-related activities conducted by the control group. This suggests that students will benefit from programs that provide focused instruction in phonological skills such as segmenting and blending phonemes to help them decode words.

In addition to outlining the importance of instruction in phonemic awareness, Chard & Osborn (1999) provided a guideline for using “decodable text” to help children practice accurate and fluent reading in stories. Chard (1999) states that, “Decodable stories can provide children with reading disabilities with the opportunity to practice what they are learning about letters and sounds (as well as phonemic awareness skills)”.

The present study aims to link the earlier research by investigating the effectiveness of explicit teaching the phonological skills of segmenting and blending and whether these skills will increase the ability to read isolated words and in prose. The phonics aspect of the instruction gives the student the tools to learn to read and the books included in the program gives the student the opportunity to practice reading successfully.

Hypothesis

Explicit teaching of segmenting and blending three-letter, three-sound words, increases the student’s ability to read isolated words and in prose.

Method

Design:

The study uses a case study OXO design in which the gain in using the strategies of segmenting and blending phonemes into words is monitored for a Year 1 student who has reading difficulties.

Participant(s):

The participant was a Year 1 student who attends a Victorian Catholic Primary School and has continued to demonstrate reading difficulties since his Prep year. This student was selected on the basis that he has been identified as “at risk”. He was on the Reading Recovery Program in 2002 for a period of 21 weeks. It has been noted that the student has made very slow progress in reading. In prose and isolated word reading, the student can automatically recognise a limited number of high frequency words. However, he displays poor phonological awareness skills, not attempting to sound out regular words letter-by-letter or use letter-cluster segmenting and blending strategies.

His entry age and pre-test assessment results are shown in **Table 1**.

Table 1.

Age	Text Level	Sutherland Phonological Awareness Test	Word Test 1	Letter Identification
7 years 6 months	3	17	0	45

Materials:

Materials used include the following:

Assessment

- *Text running records*: ClaSS Testing Texts were used to determine student's instructional text level. Testing took place before, during and after the intervention.
- *Sutherland Phonological Awareness Test*: consisted of 4 levels of phonological tasks: syllabic and subsyllabic level, phonemic level (CVC), phonemic level (blends) and grapheme-phoneme correspondences. Used for pre-testing and post-testing purposes.
- *Word Reading Task*: There are three word tests. Each sets of tests consisted of 3-sound, 3-letter words (Teacher designed see Appendix 2, 3 & 4). Word Test 1 was used for pre-testing and post-testing purposes, Word Test 2 was used as a testing tool after every three teaching sessions. Student read individual words on the word list.
- *Clay Letter Identification*: consists of upper and lower case letter name and sound. Used for pre-testing and post-testing purposes.
- *Text running records (Fitzroy Readers Story 8 "Picnic")*: consist of a revision of 3-sound, 3-letter words. Used as a testing tool during the intervention to determine the student's performance of reading 3-sound/letter words in prose.

Teaching aids

- 3-sound, 3-letter picture cards (*A Sound Way, p.183*)
- Flash-card words for blending and word reading tasks
- Magnetic letters for segmenting and blending tasks
- Writing word cards 'Square Up' (*A Sound Way, p.164*)
- Sound boxes (*Reading Recovery: A Guidebook for teachers in training, pp.32-33*)
- PM Books, Levels 3,5 & 6 texts for guided reading purposes

Procedure:

The teaching sessions were conducted by the student's teacher for 15-25 minutes over two weeks for a total of 10 sessions. The student either worked in the classroom or was withdrawn from the class. The following is a brief outline of the teaching sessions:

- Pre-test:* Letter ID, Sutherland Phonological Awareness Test, Word Test 1, ClaSS Testing Texts.
- **Sessions 1-4:** These sessions consisted of explicit teaching in the phonological awareness of segmenting and blending tasks with a focus on hearing individual sounds in words.
New words were introduced with revision of previous sessions.
- *After session 3:* Word Test 2 (3-sound, 3-letter words, 14 words). Fitzroy Readers (prose reading; running records).
- **Sessions 5-6:** These sessions began with text reading followed by the segmentation and blending activities with a focus on hearing individual sounds, reading in prose and isolated words.
- *After session 6:* Word Test 3 (3-sound, 3-letter words, 18 words). Fitzroy Readers (prose reading; running records). ClaSS text testing pack; running records, prose reading.
- **Sessions 7-10:** These sessions consisted of the same tasks as in sessions 5 & 6 but with an added activity of writing target words to further develop the skill of hearing the individual sounds in words.
New words were introduced with revision of previous sessions.
(refer to Appendix 1 for detailed teaching sessions)
- *Post-test:* Letter ID, Sutherland Phonological Awareness Test, Word Test 1, ClaSS Testing Texts

Results

The student's performance is described in 4 sections:

- 1) Word Reading: 3-sound, 3-letter words
- 2) Text Level (prose reading): ClaSS Testing Texts
- 3) Prose Reading (3-sound, 3-letter words): Fitzroy Readers Story 8
- 4) Phonological Awareness: Sutherland Phonological Awareness Test

The student's isolated word reading was calculated in terms of scores on the pre, interim and post-tests. These scores were then converted into percentages. One point was given for each word read accurately.

The text level was calculated using running records to determine the instructional text level at pre, interim and post-testing.

The number of 3-sound, 3-letter words read accurately in prose reading of the Fitzroy Readers Story 8 was calculated using running records. One point was given for each 3-sound/letter words read accurately and were then converted into percentages. Any word repeated was not scored. (A list of 3-sound/letter words read accurately and a list of the 3-sound/letter words used in the text is in Appendix 5). The overall reading errors were also scored.

Raw scores were given for each item of the Sutherland Phonological Awareness Test.

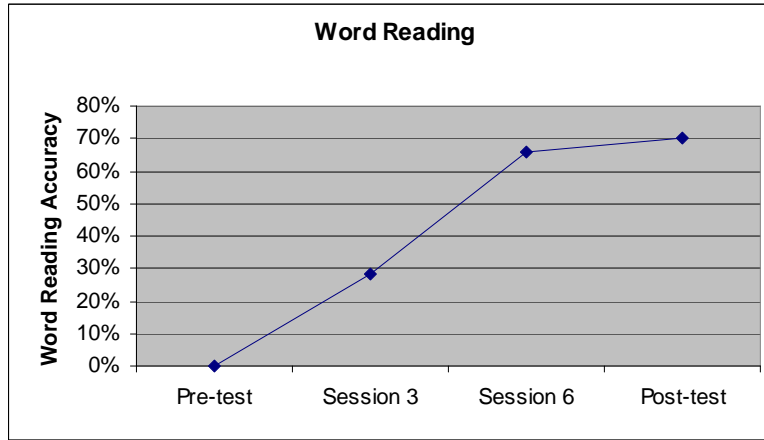
The relevant data discussed are shown in Table 2.

Table 2.

Word Tests				Text Level			Fitzroy Reader		Sutherland Phonological Awareness Test	
Pre-test	After session 3	After session 6	Post-testing	Pre-test	After session 6	Post-testing	After session 3	After session 6	Pre-test	Post-testing
0/20	4/14	12/18	14/20	3	6	8	6/18	6/18	17/58	29/58
0%	28.5%	66.67%	70%	-	-	-	33.33%	33.33%	-	-
							57/113 errors	49/113 errors		

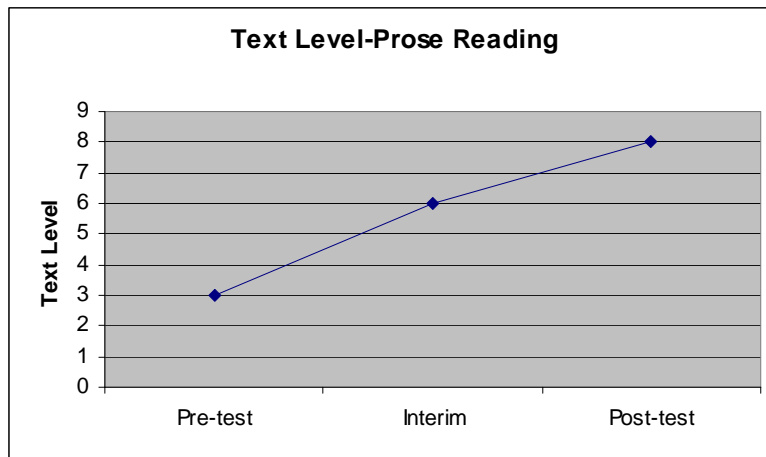
The data indicates that the student benefited from explicit teaching in segmenting and blending 3-sound, 3-letter words. The most significant gains were made in word reading, text level reading, and the phonological awareness test. The least gain was made in the prose reading of the Fitzroy Reader with no growth in the reading of 3-sound, 3-letter words. However, the student did make less error in the overall reading of the text by the 6th session compared to errors made in session 3; although errors made overall are still huge.

Graph 1. The following graph shows the student's isolated word reading accuracy as measured by the Word Tests.



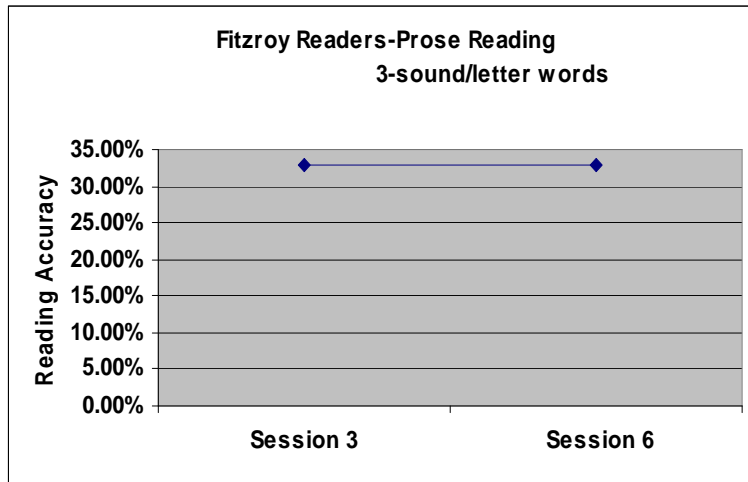
The graph demonstrates that the student had very poor knowledge of segmenting and blending to attempt unknown words prior to the intervention, with a score of zero out of twenty words tested. However, as the sessions progressed the student made substantial gains with a 70% increase by post-testing. He used his knowledge of segmenting and blending to attempt unknown words.

Graph 2. The following graph shows the student's instructional text level as measured by converting error rate to percentage accuracy score (Clay, 1993).



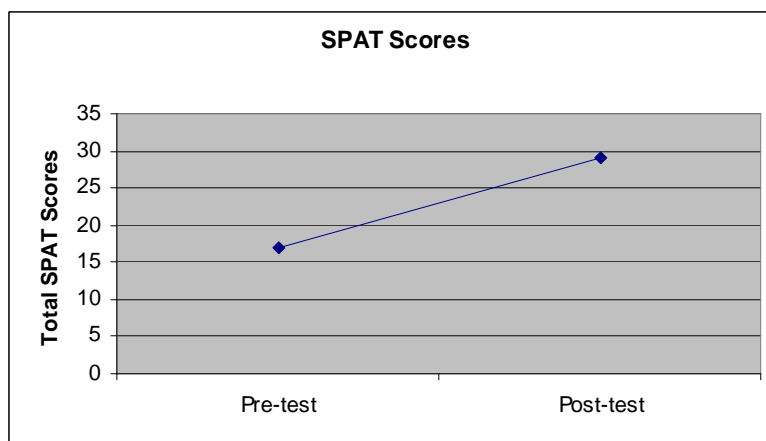
The graph demonstrates that the student showed an increase in text reading. The student gained three text levels, then showed gains of two more text levels by post-testing.

Graph 3. The following graph shows the student's prose reading of 3-sound, 3-letter words in the *Fitzroy Readers* text.



This graph demonstrates no gains made by the student's reading of 3-sound, 3-letter words in sessions 3 to 6. The student made no attempt to transfer his knowledge of segmenting and blending these words.

Graph 4. The following graph shows the student's total scores from the Sutherland Phonological Awareness Test.



This graph demonstrates a growth in the student's SPAT scores. In pre-testing the student was two standard deviation below the mean, which is 40 points for grade one level. This result is considered to be a significant weakness in phonological awareness. However, after the intervention, the student improved by one standard deviation.

Discussions

The findings of this action research has generally supported the hypothesis that teaching segmenting and blending of 3-sound, 3-letter words improves student's word and text reading. The word reading tasks and the instructional text level results indicate an improvement in word reading accuracy. The student, however, applied the word reading strategies of segmenting and blending unknown words more evidently in the Word Reading Tests than in the prose reading of the ClaSS Testing Texts. This suggests that there was some transfer of phonemic knowledge to reading isolated words but the strategies taught was not yet transferred at text level.

Likewise, the student did not use the strategies of segmenting and blending when decoding the CVC words in the *Fitzroy Readers*. There were no gains made in the reading of these words.

Researchers Lane, Pullen, Eisele, & Jordan (2002) states that the skills of segmenting and blending phonemes are more advanced skills associated with phonological awareness and the most important for application to decoding. These more difficult skills can pose problems for many readers with reading difficulties. However, Lane(2002) asserted that "improvements in phonological awareness can and usually do result in improvements in reading ability". This improvement is shown in the Sutherland Phonological Awareness Test results. The student made no gains in the skills of segmenting and blending phonemes prior to the intervention but by post-testing there was an increase in these skill levels.

Interestingly, there were considerable gains made overall in the prose reading of the ClaSS texts compared to the *Fitzroy Readers*. Researchers Chard & Osborn (1999) suggested that texts used for students to practice accurate and fluent reading should include decodable words that use letter-sound relations, have high-frequency sight words, is comprehensible, is predictable and provides children with engaging language and print experiences. The ClaSS texts used did include decodable words with familiar sight words and engaging language. These books were also comprehensible and predictable allowing the student to use the meaning, context and structure cues more effectively. In contrast, the *Fitzroy Readers* consisted of numerous decodable words, thus, the focus was on decoding and less on making meaning. Furthermore, the sentences were not predictable or patterned, and the language was not engaging. Therefore, the *Fitzroy Readers* text is not an effective tool for assessment of prose reading.

Despite the lack of transferable knowledge of the skills of blending and segmenting, there was an increase in the overall reading accuracy in prose, for both texts, with the *Fitzroy Readers* making the least gains.

There are a number of implications for teaching practice which stems from the study. Early intervention is necessary to help address reading problems. Researchers clearly demonstrated that early intervention can promote the development of phonological awareness and is a reliable predictor of later reading ability. A second implication is that early language experiences, such as oral and listening tasks can have a significant impact on the development of phonological awareness. Children need to understand, hear and use the English language before they are exposed to them in reading. As children learn to read they need to be aware of sounds in words and the relationship between sounds and letters. If they cannot hear and manipulate the sounds in words, break up the sounds and blend these together, they will find it difficult to read.

Thirdly, teachers need personal development in the areas of phonological awareness or in any area of reading difficulties in order to select effective methods for assessment and for the intervention of early reading problems.

The present research has been limited to studying one student. Future research should examine more than one student in order to make a comparison of their performance in the reading intervention. It is also important to note the time and place in which the sessions were conducted. At times the teaching and testing had to take place in the classroom and later in the day. This affected the student's concentration and performance. Future intervention should be conducted in the morning and the student(s) withdrawn from the class to minimise distractions. Furthermore, for students to benefit from reading intervention there needs to be ongoing teaching and practice in the areas of reading disability.

Bibliography

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APPENDIX 1

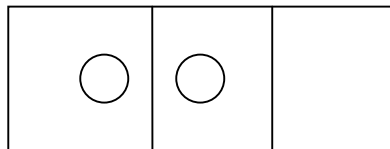
Teaching Sessions

Session 1-*Hearing the sounds within three letter words (using picture cards)*

- Use picture cards for simple words such as *dog, cat, tin, pen, ,* to introduce the task of hearing the sounds in words
- The teacher slowly articulates the individual sounds in the words for the student.
eg. d-o-g says /dog/
- The student repeats what the teacher says by slowly articulating the sounds
eg. d-o-g says /dog/
- Repeat for all target words for student to practise hearing the individual sounds **(10 mins)**
- Have child independently sound out each word and blend together **(5 mins)**

Session 2- *Using sound boxes and picture cards*

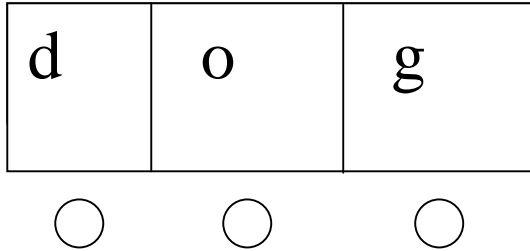
- Revise hearing and blending sounds in the words *dog, cat, tin, pen,* **(3 mins)**
- Using the picture cards in session 1, teacher places sound boxes underneath each picture and articulates each word slowly while pushing counters into the boxes, sound by sound. Demonstrate for three words: **(2 mins)**
ie.



- Ask the student to articulate the sounds slowly while he pushes the counters into the boxes

If student finds task difficult, then student says the sound(s) he can say and teacher gives the unknown sound(s).
- Repeat for all target words
- Introduce 2 more picture cards (three letter words: sun, cup) **(10 mins)**

Session 3-Using *sound boxes with typed letters, picture cards and coloured counters*
i.e



- Revise hearing and blending sounds in the words *cat, dog, cup* without the letters
(2 mins)
 - Introduce rime units *cat/mat, dog/log, cup/pup, big/pig* using the sound boxes with typed letters, picture cards and coloured counters to represent a different sound in the words.
 - Teacher says one of the target words then says individual sounds slowly while pushing counters into appropriate boxes. Blend the sounds together to make a word. Repeat a word from the same rime unit.
 - Student says a target word then sounds it out while pushing counters into the boxes. Blend the sounds together to make a word. Repeat a word from the same rime unit.
- If student finds task difficult, then student says the sound(s) he can say and teacher gives the unknown sound(s).
- Now use the sound boxes without the typed letters and sound out the words.

(18 mins)

Session 4-Using the same strategies as in session 3 and introduce new words:

pot/cot

pen/ten

pin/tin

(20 mins)

Session 5-

- **Text Reading: ‘Sam and Bingo’ L3, PM Book**
Student predict story from title; discuss topic of story
While reading encourage student to segment and blend known/unknown words
Retell story. **(5 mins)**
- **Segmentation Activity (Using picture cards, sound boxes with typed letters and counters)**
Revise all target words taught so far, first using picture cards, sound boxes with typed letters and counters. Student says each sound, then blends the sounds together and says the whole word.
Then take away the picture cards. Use the sound boxes and counters to segment and blend the sounds together. **(8mins)**
- **Blending Activity(Using word cards)**
Teacher shows a target word on a flash card and slowly sounds out the word.
The student listens and then says the whole word.
Repeat for all target words . **(8 mins)**

Session 6-

- **Text Reading: ‘Hide and Seek’ pages 2-4, L5, PM Books**
Student predict story from title; discuss topic of story.
While reading, encourage student to segment and blend known/unknown words. **(3 mins)**
- **Segmentation Activity (Using picture cards, sound boxes with typed letters and counters)**
Use the same strategy as in session 5 (target words: box/fox, pig/big, tin/pin, cot/pot, pen/ten) and introduce new words:
man/van box/fox **(9 mins)**
- **Blending Activity(Using word cards)**
Use the same strategy as in session 5 and introduce new words:
man/van box/fox **(8 mins)**

Session 7-

- **Text Reading: 'Hide and Seek' pages 4-10, L5, PM Book**

Re-tell story. Predict what would happen next in the story.

Student segment and blend known/unknown words.

(5 mins)

- **Segmentation Activity (Using picture cards, sound boxes with and without typed letters and counters)**

Revise sounding out task for the following words which student had difficulty with:

ten/pen pot/cot pin/tin man/van

Introduce new words: *fix, bug, leg, net, top*

Use picture cards and sound boxes with typed letters. Then use sound boxes without the letters.

(8 mins)

- **Blending Activity(Using magnetic letters)**

Revise randomly selected words taught so far using the word cards to blend.

Introduce new words: *fix, bug, leg, net, top*

Teacher shows a target word on a flash card and slowly sounds out the word.

The student listens and then says the whole word.

Repeat for all target words .

- If student finds this task difficult, present the word again saying the onset and the rime

eg. 'f' 'ix'

- Using magnetic letters teacher (then student) says each sounds by pushing the letters together with finger and then blend the whole word:

eg.

b u g

(7 mins)

Target words: bug ten pot cat fix

- **Writing Target Words**

Teacher says a target word and places a picture down for the student to see. Student tries to hear the sounds and then writes the word down in the sound boxes.

ie.

b	u	g

Target words: bug ten pot cat fix

(5 mins)

Session 8-

- **Text Reading: 'Hide and Seek' pages 10-16, L5, PM Book**
Re-tell story. Predict what would happen next in the story.
Student segment and blend known/unknown words. (5 mins)
- **Segmentation Activity**
Use the same strategies as in session 7.
Revise from the following words: *cat, dog, cup, box, top, fix, bug, cot, net, van*
Introduce: *sun, gap, jam* (8 mins)
- **Blending Activity**
Use the same strategies as in session 7
Revise the following words: *cat, dog, cup, box, top, fix, bug, cot, net, van*
Introduce: *sun, gap, jam* (7 mins)
Magnetic letters target words: *sun, gap, jam, box, net, fix*
- **Writing Target Words**
Use the same strategy as in session 7 (5 mins)
Revise 5 words taught so far: *cat, dog, cup, box, top*

Session 9-

- **Text Reading: 'Jolly Roger, the pirate' pages 2-10, L6, PM Book**
Student predict story from title; discuss topic of story .
While reading encourage student to segment and blend known/unknown words (5 mins)
- **Segmentation Activity**
Use the same strategies as in session 7.
Revise the following words:
bug, cot, net, van, tin, leg, pen, sun, gap, jam
Introduce: *him, yes, lid, mud* (8 mins)
- **Blending Activity**
Use the same strategies as in session 7
Revise from the following words: *bug, cot, net, van, tin, leg, pen, sun, gap, jam*
Introduce: *him, yes, lid, mud* (7 mins)
Magnetic letters target words: *him, yes, lid, mud, bug, top*
- **Writing Target Words**
Use the same strategy as in session 7 (5 mins)
Revise 5 words taught so far: *fix, bug, cot, net, van*

Session 10-

- **Text Reading: ‘Jolly Roger, the pirate’ pages 10-16, L6, PM Book**
Re-tell story. Predict what would happen next in the story.
Student segment and blend known/unknown words. **(5 mins)**

- **Segmentation Activity**
Use the same strategies as in session 7.
Revise from the following words: *cat, dog, cup, box, top, fix, bug, cot, net, van, tin, leg, pen, sun, gap, jam, him, yes, lid, mud* **(8 mins)**

- **Blending Activity**
Use the same strategies as in session 7
Revise from the following words: *cat, dog, cup, box, top, fix, bug, cot, net, van, tin, leg, pen, sun, gap, jam, him, yes, lid, mud*
Revise any 5 words taught using Magnetic Letters to blend. **(7 mins)**

- **Writing Target Words**
Use the same strategy as in session 7 **(5 mins)**
Revise any 5 words taught.

APPENDIX 2

WORD TEST 1

Name: _____

Date: _____

cat pen lid dog cup

van net fix cot mud

jam leg him top sun

gap yes tin box bug

APPENDIX 3

WORD TEST 2

Name: _____

Date: _____

cat mat dog log

cup pup big pig

pot cot ten pen

pin tin

APPENDIX 4

WORD TEST 3

Name: _____

Date: _____

cat mat dog log

cup pup big pig

pot cot ten pen

pin tin man van

box fox

APPENDIX 5

3-sound/3-letter words- Fitzroy Readers Story 8 “Picnic”

After Session 3 results	After Session 6 results
<i>Words read correctly:</i> mum dad Tom can for run	<i>Words read correctly:</i> mum dad Tom can for run

3-sound/3-letter words in the text

jet	can
six	for
Jim	run
ten	sun
Pat	got
Mum	hot
Tom	fun
Dad	
let	
yes	
ran	

APPENDIX 6

Contains:

- Test results (SPAT)
- Test results Letter ID
- Test results(Word Tests)
- Running Records(ClaSS testing texts)
- Running Records (Fitzroy Readers)
- A Copy of the Fitzroy Readers Story 8

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