

## **Teaching at risk Year 3 and 4 ESL readers to identify onset and rime units, and to segment and blend using these units while reading, improves their overall reading accuracy.**

### **Abstract**

It is known that in the middle years of Primary schooling there can be students who are experiencing difficulties in reading and comprehending texts required of the cohort. Prose reading accuracy for these readers is generally related to word reading accuracy and is often related to an underdeveloped phonological knowledge.

The hypothesis of this study is that teaching at risk Year 3 and 4 ESL readers to identify onset and rime units, and to segment and blend using these units while reading, improves their overall reading accuracy. Research suggests that explicit teaching related to segmenting and blending can increase a reader's capacity to use analogy to decode unfamiliar words and so increase word reading accuracy.

In this study the students were taught, over a series of ten sessions, to identify number of onsets and rimes, to manipulate these units to make new words and to read them in short texts. Pre- and Post-data were collected in relation to word reading accuracy, prose reading accuracy and overall reading accuracy. The study compares the results of two groups of students, a control group and an intervention group. The results indicate support for the hypothesis as the word reading accuracy, the prose reading accuracy, and the overall reading accuracy of the intervention group showed improvement. The results suggest that teaching struggling readers to identify onset and rime units and to segment and blend using these units is a successful strategy, and should be explicitly taught to assist students to improve their word and prose reading accuracy.

### **Introduction**

It is common knowledge that in the middle years of Primary schooling there can be students who are experiencing difficulties in reading and comprehending the texts required of the cohort. As a result these readers are missing out on valuable learning that can ensue from reading and they are also falling behind in developing the complex skills required to gain deeper meaning from texts. Prose reading accuracy for these readers is generally related to word reading accuracy and is often related to an underdeveloped phonological knowledge (Howard Allor 2002; Munro 1998). They often lack the skills to decode unfamiliar words, their reading becomes disjointed, and most of their energy is concentrated on decoding with little working memory left for comprehending what they are reading.

Phonological knowledge and phonemic knowledge have been identified as key influences on the development of reading. Phonological knowledge is the knowledge about sound patterns in the language and phonemic knowledge, a sub-set, is knowledge of individual sounds (Munro 1998). When readers use their phonological knowledge they are able to recognise sound patterns in spoken language and are also able to connect the written words in texts with these sounds. The

sounds can relate to individual letters (s, t, b, c) or can relate to clusters of letters such as onsets and rimes (st-ay), prefixes (un-, pre-), suffixes (-ed, -ing) or syllables (con-cert).

The process of reading words occurs in a number of ways. Readers may have a number of words that they have stored in their memory. These words are known to them and are read by sight. Many words however, are unfamiliar and need to be decoded. This may be done in various ways. Readers may predict the word by using some distinctive visual information together with context clues. This may not necessarily provide a successful result as there is a certain amount of guesswork involved. Readers may also decode by segmenting a word into its phonemes and blending them back together. While this may be successful in many instances, it can be a fairly slow process. Another way of reading words is to read by analogy to familiar words. This involves the reader recognising sound patterns in words, matching these with letter clusters, and transferring this knowledge from a known word to an unknown word (for example, being able to read *went* can help read *tent*). They segment words into recognisable chunks and draw on their phonological knowledge to blend these together into words. Students who are having difficulty in reading are less able to perform these processes.

There has been much research exploring the use of segmenting and blending when readers take words apart while reading. While studies accept that readers do engage in these two processes (Bryant 1998; Munro 1998; Howard Allor 2002; Nation & Hulme 1997), there is not general agreement relating to the relative effectiveness of using either phonemes or using sound patterns, such as onset and rime, as a basis for decoding words. (Nation & Hulme 1997; Bryant 1997; Howard Allor 2002).

There is agreement that segmenting and blending, whether at the phoneme level or with onsets and rimes, *can* be taught and that it can have a positive effect on word reading accuracy (Juel & Minden-Cupp 2000) or both word and prose reading accuracy (Munro 1998; Howard Allor 2002; Ehri, Satlow, & Gaskins 2009). A number of studies have concluded that rather than identifying phonemic segmentation or onset and rime as the most influential factor in assisting reading acquisition, combined instruction in both is perhaps the way to go. There is an argument that onset and rime represent a natural segmentation phonologically for early readers (Juel & Minden-Cupp 2000; Munro 1998; Ehri, Satlow & Gaskins 2009) and that awareness of individual phonemes often only develops with reading instruction (Perfetti, Beck, Bell & Hughes, 1987 as cited in Juel & Minden-Cupp 2000). Rimes are also more predictable than smaller linguistic units. In English the sound a vowel represents is difficult to predict without considering surrounding letters (Juel & Minden-Cupp 2000; Munro 1998). The letter *a* can have a number of sounds such as in *was*, *past*, *hat*, *face*, and *again*. Whereas within rimes, such as *at*, *ay*, *ad*, and *ate*, the vowel sound is fairly predictable. For these reasons it might seem that onset and rime would be more accessible to young readers and thus should receive explicit instruction prior to phonemic segmentation.

There is also some research which has concluded that when instruction is focused on onset and rime, the outcomes were improved if this was also accompanied with instruction on phonemic

segmentation and blending. Juel and Minden-Cupp (2000) a study which examined four first grade classrooms in order to begin to identify specific instructional practices that appear best to cater for different kinds of learners. They found that using an approach that included both onsets/rimes and the segmenting and blending of phonemic units was the most effective. This was particularly true for those students who had limited letter sound knowledge. They concluded that using analogy to rimes was not an effective strategy until children have a sound knowledge of consonant and vowel sounds (Juel & Minden-Cupp 2000, p. 485).

Ehri, Satlow, and Gaskins (2009) set out specifically to explore whether grapho-phonemic analysis strengthens analogy instruction and did this with a cohort of struggling young readers. They conducted a longitudinal study over four years where four classes were instructed in the use of analogy. Keywords were taught and reinforced in each class using onset and rime as a major component. Two of the classes received additional instruction in grapho-phonemic instruction (KEY-PLUS) and the other two classes did not (KEY). The results showed that the KEY-PLUS students showed superior performance for word reading accuracy and spelling during the first two years, but that the KEY students finally caught up to the KEY-PLUS by the third year of instruction.

A number of points can be drawn from these two studies. Firstly, they support the notion that instruction in phonological knowledge can assist struggling readers. Secondly, not all learners benefitted from the same instruction equally. Those with limited literacy skills responded to instruction in phonemic awareness (Juel & Minden-Cupp 2000, p. 484) and with older students the knowledge of larger units, such as onset and rime, became more important to learning longer words (Ehri, Satlow & Gaskins, p. 183). The overriding finding would seem to be that phonological instruction does matter, but the form it takes may need to vary within and between cohorts in order to cater for the literacy learning needs of readers.

This study aims to investigate the impact of explicit phonological instruction with struggling ESL readers in the middle primary school. These students have difficulty reading texts at the Year 3- 4 level. This difficulty is related to comparatively low word reading accuracy. The situation raises a number of questions. Do the students lack the necessary phonological knowledge to segment and blend word units? Do they have sufficient phonemic knowledge to successfully manipulate letters and letter clusters? Will an underdeveloped vocabulary set impact on the effectiveness of their word processing? And will explicit instruction in onset and rime (in order to facilitate analogy) be sufficient to improve the reading accuracy of students of this age? The current study will focus on word reading, but also focus on prose reading accuracy. For students in middle primary time is paramount and the transfer of phonological processing skills to reading texts is crucial in order for them to engage in learning. The hypothesis of the study is that teaching at risk Year 3 and 4 ESL readers to identify onset and rime units, and to segment and blend using these units while reading, improves their overall reading accuracy.

# Method

## Design

The study uses a case study OXO design, in which the improvement of word and prose reading accuracy is monitored following the explicit teaching of rime units and analogy. The study compares two groups of students, a control group and an intervention group.

**Table 1: Characteristics of participants**

Student	Control = 0 Teaching=1	Age in months	Gender Male = 0 Female = 1	Years of Schooling	ESL No = 0 Yes = 1 Born OS = 2	Earlier Support None = 0 NA = 1 Ref = 2	EMA No=0 Yes=1
A	1	108	1	3.5	1	0	1
B	1	103	0	3.5	1	0	1
C	1	118	0	4.5	2	1	1
D	0	117	1	4.5	2	2	1
E	0	100	1	3.5	1	0	1
F	0	107	0	3.5	2	2	1

Six middle primary students were chosen to participate in the study. They came from Year 3-4 classes and were aged between 8 and 9 years at the beginning of the study. Two were in Year 4 and the others were in Year 3. They were chosen because their decoding accuracy was low. They were reading at between level 14 and Level 21 (Reading Recovery Levels) and were identified by their teachers as needing extra support with reading as their low reading levels were impacting on their learning in other curriculum areas.

As can be seen in Table 1 all of the students are from backgrounds other than English and have low socio-economic status. Of those born overseas students C, D, and F have been in Australia for between 2 to 6 years. Those born overseas have been supported through New Arrival and/or Refugee funding. Three students were in the intervention group and three were in the control group. The students in both groups were a mixture of students from two different classes. Across the study there were equal numbers of male and females, but in the intervention group there were there were two males and one female.

The two classes were at the time implementing an independent reading routine. The structure involved the students in choosing their own books to read and completing text responses that had been explicitly taught to the whole class. Daily whole group teaching to introduce the text responses, weekly scheduled conferences in multi-ability groups, and daily independent reading were common across the two classes. This routine was relatively new to both classes, but the implementation was part of consistent practice across Years 3-6, and so the instructional practices in the two classes could be said to be somewhat similar.

## **Materials**

### **Assessment**

#### PM Benchmark Kit 2

Leveled unseen texts used to assess reading accuracy levels.

#### Rime Unit Test (Dalheim 2004)

Used to assess recognition of rime units. The test contains words containing the 37 dependable rime units.

#### Text from ERIK Kit

*A Kite for Tate and Paul*. Used to assess accurate reading of rime units within prose. The same text was used for both pre- and post-testing.

#### Blank running record sheets

Used for all running records taken during the sessions and for the pre- and post-test.

### **Materials for teaching**

#### Flashcards

Onset and rime pack for targeted rime (onset in red, rime in blue). Used for making words from onsets and rimes (see Appendix 1 for list of words from which the onsets and rimes were drawn).

#### Flashcards

Words with targeted rimes. Used to provide rapid naming practice within the session and also used the following session for practice of previous sessions targeted rimes (see Appendix 1 for list of words used).

#### Computer Powerpoint Program

Used to reinforce rime units taught in previous sessions. Words with targeted rime came onto the screen in the following way:

Whole word

Onset coming from the left

Rime coming from the right to make the word

See Appendix 2 for the list of words used in each program.

#### Texts

Short texts with the current session's targeted rime (Appendix 3). The texts were either at a Year 1 or Year 2 level according to Fry's Readability Test (Appendix 1). Used to provide examples of targeted rime units in prose for students to read.

#### Session Structure Outline

The outline of the 10 sessions that provide explicit teaching of rime units and analogy (Appendix 4).

### Session Plans

Plans were written prior to each session, but for the purposes of the study the session plans are written as a description of what occurred during each session (Appendix 5).

### Rime Unit Foci for Lessons

Outlines of the rime units, texts and words used in each session (Appendix 1).

### Large Whiteboard

Used for manipulating magnetic letters and for writing up lists of words.

### Magnetic alphabet letters

Used to provide hands-on manipulation of target onset and rimes.

### A3 paper and textas.

Used for students to write words.

### Student Word Book

The book contained a page for each targeted rime (Appendix 6). Used for students to write in a word they know with that rime and then for them to write other words they can write with that rime. Used at the end of the session.

## **Procedure**

### **Pre- and post-testing**

All students were pre-tested using the PM Benchmark Kit to obtain an instructional reading level. The texts were unseen. An accuracy rate of above 90% indicates that the reader is reading at an *instructional* level, below 90% indicates that the text is *hard*, and above 95% indicates *easy*. For an instructional text to be determined the students were required to read to a point where two consecutive hard texts were read. This assessment procedure was repeated for post-testing to gauge whether the accuracy rate had improved.

In addition, all students had a running record taken on a common text, “A Kite for Tate and Paul” (Appendix 7). This text contains words with dependable rimes. It was used to assess how well the readers can read words with rime units, when these words are in prose, not in isolation. A running record was taken on the same text at the end of the series of sessions. The accuracy rate was established by calculating the percentage of words read correctly.

The students were also administered the Rime Unit Test (Dalheim 2004). The words were read vertically from top to bottom with only one column seen at a time. This was to ensure that if analogy was used it was not prompted from words side by side, but from remembering a word that they know that looks like the unfamiliar word. The percentage of words correct was noted each time.

At the beginning of each session a running record was taken on each student reading the previous session's text. This was done while the other students participated in independent tasks that served to reinforce rime units already covered. Ongoing monitoring in this way was an attempt to identify the level of difficulty of the content covered and would enable the sessions to be adapted accordingly.

### Tasks

The session generally occurred on consecutive days over a three week period. The students were taken from their classrooms and worked together in another teaching space. The sessions went for approximately 45 minutes and followed a similar pattern as can be seen in Table 1. The descriptions of each of the individual sessions can be found in Appendix 5 and the rime unit foci for each session can be found in Appendix 1.

### SESSION STRUCTURE

**Table 2: The Structure of a Typical Session**

Time	Task	Description
10 min	Running record on previous session's text.  Reinforcement of previous day's session.	Students one by one read previous session's text to the teacher.  Other students work on independent tasks: <ul style="list-style-type: none"> <li>• finding rhyming pairs of pictures and articulate the rime(early sessions),</li> <li>• In pairs or individually playing computer powerpoint program,</li> <li>• Individually taking a pack of flashcards of words with rimes and saying them as quickly as they can.</li> <li>•</li> </ul>
10 min	Introduction of the new rime.  Breaking the word.  Making other words with the same rime.  Using self talk .	Students read the sentence with targeted rime, say the word when it is seen removed from the text, and explain the meaning if necessary.  Using the magnetic letters, the students break the word into onset and rime and then substitute another onset to make a new word. The onsets are on the white board for them to use. Given appropriate onsets the students use the magnetic letters to add onsets to the rimes to make new words.  They brainstorm words that have the same rime. Either teacher or students write the words.  Using the onset and rime cards the student make new or nonsense words and articulate them.
2 min	Rapid automatised naming	The students as a group or individually go through flashcards saying the words (with targeted rimes) as fast as they can.
10 min	Text reading Shared Reading or Guided Reading Strategy	The students discuss as a group a response to the tuning in prompt.  They read the text independently.

		They clarify (with the support of the teacher) any words they were not sure of. The students have a discussion with the teacher around the focus for reading (meaning). They highlight words which have the targeted rime unit.
5 min	Complete Word Book	The teacher writes or the students think of a word (with the targeted rime) that they know well and write it in the top section of the page. They then think of all the words they can write that have the same rime and write them in their books.
2 min	Review Meta-language	They reflect on what they have learned. They use a script to assist their self-talk, e.g., "If I can read <i>coke</i> then I can read <i>poke</i> ."

Using anecdotal evidence, sessions were adapted to include explicit teaching for Student A on pronunciation of short vowel sounds and on identification of 2- and 3-letter onsets (See Appendix 5, Session 9). Both Sessions 9 and 10 were to include additional instruction for her, but she was absent for the last session.

### Data

Three sets of materials were used to carry out the pre- and post-testing on each student. The PM Benchmark Kit was used to identify overall reading accuracy measured in Reading Recovery reading levels. The reader's instructional level was used as a raw score. When comparing the groups the average text level was used.

A running record was taken on the common text (Appendix 7) before and after the teaching to assess how well the students were reading rime words within prose. The accuracy rate was calculated each time. These running records were also analysed in relation to the types of errors made. When comparing the groups the average of the percentage of words correct was used.

The third test was the Rime Unit Test (Dalheim 2004). It was used to assess students' identification of rime units before and after teaching. The average percentage of words correct was used to compare the groups. The results were also subject to a more detailed analysis of each student's word accuracy by calculating 2-letter rimes as opposed to 3-letter rimes, and by comparing the number of 3-letter, 4-letter, and 5-letter words correct.

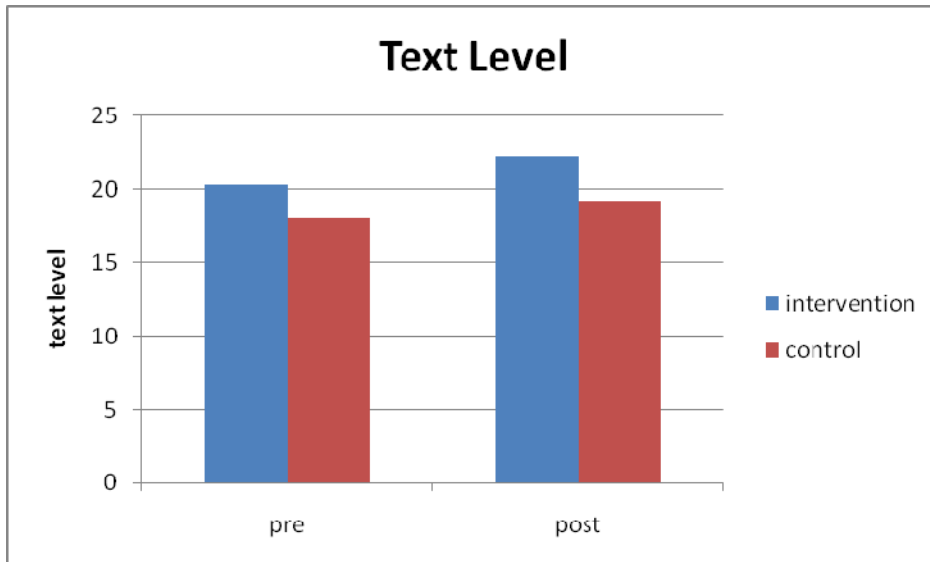
In addition to the pre-and post-testing progress was monitored in an ongoing way. A running record was taken on the previous day's session text. The accuracy rate was calculated and an error analysis was carried out.



## Results

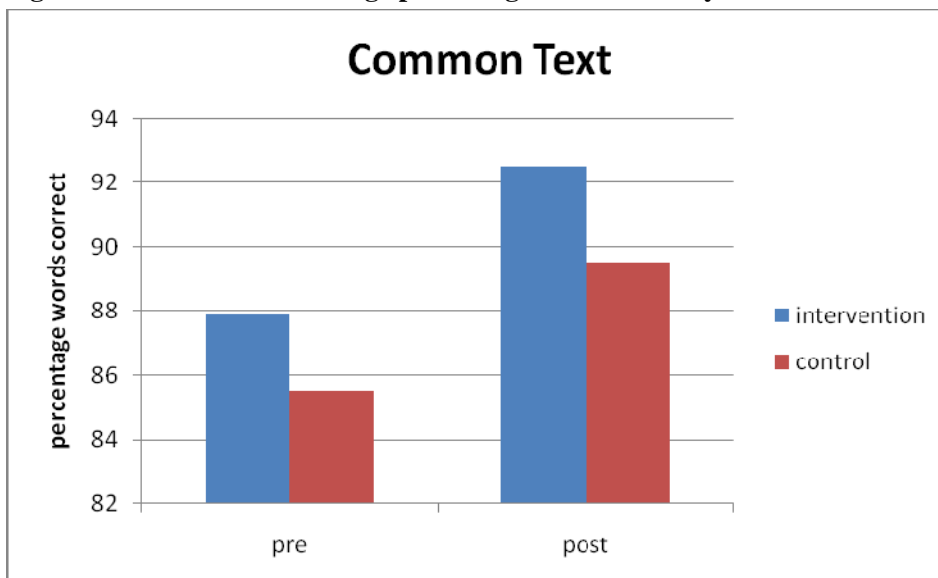
The results indicate support for the hypothesis that explicit teaching at risk Year 3 and 4 ESL readers to identify onset and rime and use these units to segment and blend words while reading improves overall reading accuracy.

**Figure 1: Pre- and post-test average text level scores**



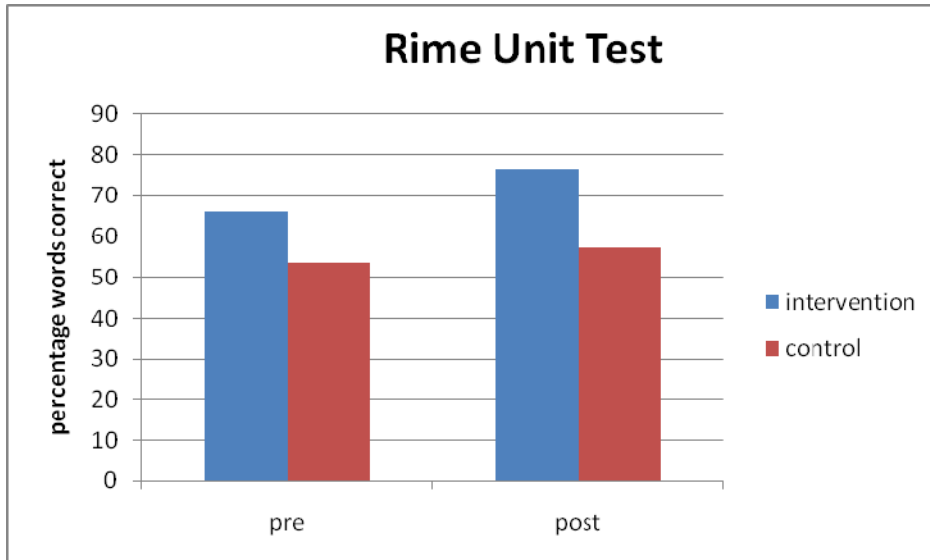
When the pre- and post-test average text level scores for both groups are compared (Figure 1), the intervention group shows slightly more improvement. However; all students whether in the control or intervention group improved their text level by between 1 and 3 levels (Appendix 8).

**Figure 2: Common text average percentage word accuracy**



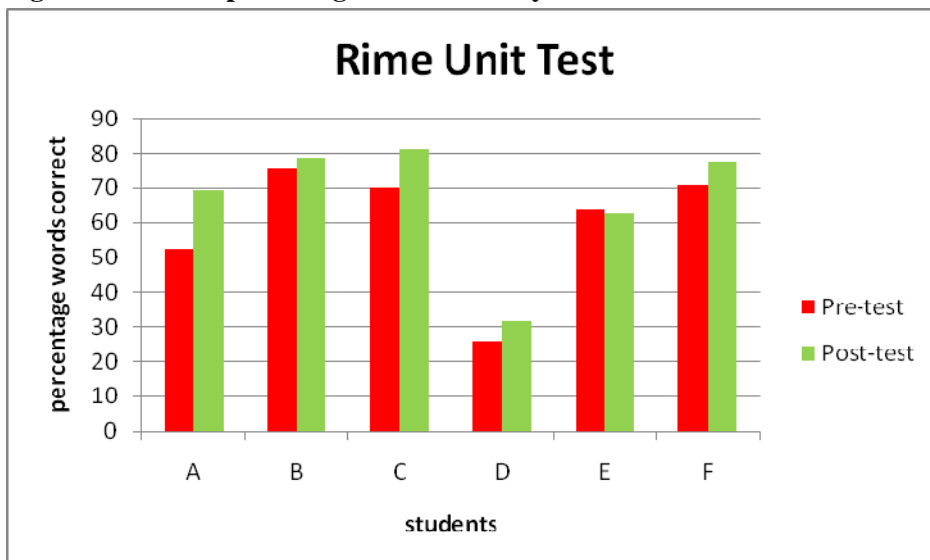
The data for the accuracy rate for the common text show again, that all students achieved some gains (Figure 2). The students all improved their word accuracy when reading prose, but the intervention group shows more improvement than the control group, achieving an increase of 4.6% with the control group showing an increase of 4.0 % (Appendix 8).

**Figure 3: Rime Unit Test average percentage word accuracy**



When comparing the results for the Rime Unit Test (Figure 3), both groups show an increase in the percentage of words correct, but the intervention group shows a greater increase. The percentage increase for the intervention group is 11.4% compared with 4.4% for the control group. All students in the intervention increased their word accuracy.

**Figure 4: Student percentage word accuracy in Rime Unit Test**



The data in Figure 4 compares the students’ pre-test and post-test word accuracy in the Rime Test. Students A and C, both in the intervention group, achieved the highest increase in identified words. The percentage increase in total words for Student A is more than double that of Student C.

Student E, in the control group, did not perform as well in the post-test as she did in the pre-test. This is interesting as she was one student who actually articulated how she used analogy to get to new words. For example, she said “bug, mug” to read *mug*.

Students A and D had the lowest starting point for identifying rime words and also had the lowest text levels at the beginning of the study (Appendix 8). This would seem to suggest that there is a connection between underdeveloped phonological knowledge and general text reading accuracy and that an improvement in onset and rime could influence prose reading accuracy and thus would provide support for the hypothesis.

**Table 3: Analysis of word accuracy in Rime Unit Test**

	percentage increase in 3 letter words	percentage increase in 4 letter words	percentage increase in 5 letter words	percentage increase in total words	total number new words correct	percentage of new words correct that contain targeted rimes
<b>Student A</b>	<b>25.0</b>	<b>20.3</b>	<b>11.8</b>	<b>25.5</b>	<b>23</b>	<b>65.7</b>
<b>Student B</b>	<b>4.2</b>	<b>2.7</b>	<b>5.8</b>	<b>3.4</b>	<b>12</b>	<b>57.1</b>
<b>Student C</b>	<b>0.0</b>	<b>16.2</b>	<b>13.7</b>	<b>12.1</b>	<b>27</b>	<b>81.8</b>
<b>Student D</b>	<b>8.3</b>	<b>8.1</b>	<b>2.0</b>	<b>5.4</b>	<b>16</b>	<b>56.2</b>
<b>Student E</b>	<b>8.3</b>	<b>1.3</b>	<b>-9.8</b>	<b>-2.0</b>	<b>12</b>	<b>41.6</b>
<b>Student F</b>	<b>4.2</b>	<b>5.4</b>	<b>9.8</b>	<b>7.3</b>	<b>10</b>	<b>58.8</b>

Table 3 shows a more detailed analysis of the Rime Unit Test. Student A and B in the intervention group achieved the greatest percentage in words. The number of words scored correctly can be seen in Appendix 9. Students A and Student C identified the most new words (ones that they had not identified in the pre-test), 23 and 27 respectively. The percentage of these new words that contained targeted rimes can also be seen in Table 3 (Student A 65.7% and Student C 81.8%) which does lend support to the claim the teaching of onset and rime does improve a student’s capacity to use analogy to work out unfamiliar words. Student B, however did not show the same degree of positive gains in this way.

**Figure 5: Word accuracy for session texts**

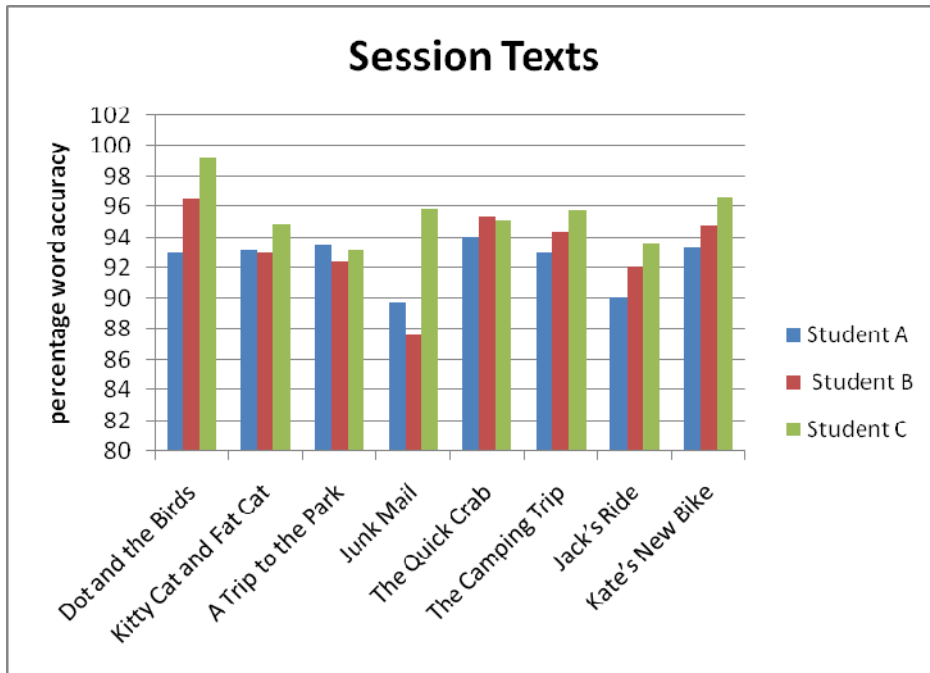
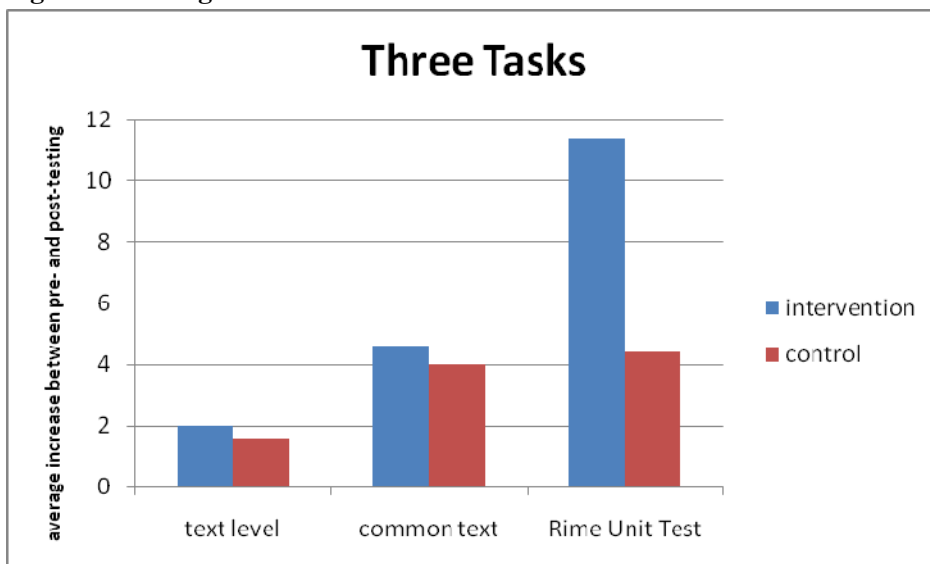


Figure 5 shows the results of running records taken on the session texts. Students C performed consistently well with most texts coming out *easy* (above 95% accuracy). Student B's results showed the most variability. One text seemed to present difficulties for Student A and B, but not for Student C. The text in question, *Junk Mail*, is the only session text that is a non-fiction text.

**Figure 6: Average increase in results for the three assessment tasks**



A snapshot of the average increase of results for the three tasks in Figure 6 shows that in all three of the tasks the intervention group showed more improvement than the control group. For the text level the average is taken of the increase in text levels, and for the common text and Rime Unit Test the average is taken of the percentage increase in word accuracy. While the data for the

three tasks cannot be directly compared with each other, they do show some improvement trends. Both groups showed improvement in all three tasks, but for each the intervention group showed greater improvement. With text reading accuracy the intervention group shows slightly more improvement than the control, but the most improvement occurred in reading words in isolation. The results show that the intervention group performed 7% better than the control group in identifying onset and rime units in words in isolation.

## **Student A**

### **Participation in sessions**

Student A participated keenly in the sessions, although lacked confidence in her ability to carry out tasks and often checked with the others to confirm. Her knowledge of the English language is developing. She communicated clearly though her use of structure was not always correct, especially in relation to verb agreement. Her pronunciation of some sounds was not correct, saying ‘pup’ for ‘pop’ for example, and even with guided practice there was only some improvement with this. It became evident that she was having difficulty articulating some onsets of two and three letters. At the beginning of Session 9 and 10 some time was planned to work with her on this. She only participated in one of these as she was absent for the last session.

### **Rime Unit Test**

Of all the students in the study Student A showed the greatest improvement in the Rime Unit Test. In the pre-test she showed errors related to onset as well as rime. She frequently used distinctive visual features to attempt the words. She made most of her gains with the two letter rimes, but still showed that she was having some difficulty with five-letter words. In the pre-test she had less than 50% of the two letter rimes correct compared to 79% in the post-test (Appendix 9 Table 2). She increased the number of total words she was able to identify by 25% . Of the new words identified 65% of them contained the targeted rimes. This would suggest that the explicit teaching did have an impact on her word identification.

### **Common text**

She showed a 5.3% increase in accuracy with the common text. This meant that it went from *hard* to *instructional*. In the pre-test she had 15 rime words incorrect, but in the post test this decreased to 9. Many of her errors related to leaving off endings such as ‘s’ of ‘ed’.

### **Session texts**

All the session texts were read at an instructional level except for *Junk Mail* which was *hard*. In all texts there were a number of errors relating to endings, but in *Junk Mail* there were additional errors relating to multisyllabic words. For each of the texts there were some errors relating to rime words. In the latter texts errors relating to the rime words were often connected to ending errors not base word errors, for example saying ‘brick’ for ‘bricks’. There were also instances of self-correction relating to rime words, ‘quick’ changed to ‘quickly’.

### **Text level**

In the post-test she was able to read at one level higher than she did for the pre-test. Her reading however, was generally fast, word by word, and with poor intonation.

## **Student B**

### **Session participation**

Student B participated actively in all the sessions, but at times lost focus. His English language is at a similar developmental level as Student A, although he seemed more confident. At times his use of structure was not grammatically correct, especially in relation to agreement of verbs and past tense.

### **Rime Unit Text**

In the pre-test Student B identified the highest number of words correctly, but did not show much improvement in the post-test, only a 3.4% increase. Some of the words he had correct in the pre-test were not correct in the post-test. While it needs to be acknowledged that he knew 85% of the words at the end of the teaching sessions, there were still another 22 words that he was not able to identify correctly.

### **Common text**

He only showed 1.1% improvement in accuracy with the common text. While he did show evidence of breaking words effectively in the pre-test (str-eet, str-ing) this was not evident in the post-test. In the pre-test he had 17 rime words incorrect and in the post-test there were 14 incorrect, so not much change. There were also errors related to endings, 's' or 'ed'.

### **Session text**

Student B's word accuracy when reading the session texts varied the most of all the students in the study (Figure 5). Errors were related to both rime words and endings. Occasionally he self-corrected a rime word – 'tree' changed to 'trunk' and sometimes the rime word error was related to endings – 'crab' for 'crab's'.

### **Text level**

In the post-test he was able to read at three levels above the level he read in the pre-test. His reading, like Student A lacked phrasing and appropriate intonation. His reading was fast with unhelpful finger pointing and poor intonation.

## **Student C**

### **Session participation**

Student C was keen to learn. He has been in Australia for approximately two years and so his English language is less developed than the other two students. However, he is at a stage where he is able to learn quickly, remembering and using new vocabulary as it is introduced.

### **Rime Unit Test**

Student C showed a 12.1% increase in the number of words he could identify by the end of the time. Of all the students, he was able to identify the highest number of new words in the post-test. The increase came in the 4-letter and 5-letter words and 81.8% of his new words contained a

targeted rime taught in the sessions. This shows that the explicit teaching for him did seem to have a strong impact on his learning.

### **Text level**

In the post-test he was able to read a text that was two levels above what he read in the pre-test. He achieved the highest text level of all the students who participated in the study. He read at a moderate pace with careful rereading and self-correcting. His reading was phrased and had appropriate intonation most of the time.

### **Common text**

He showed a 4.3% increase in accuracy, making this text *easy* (above 95% accuracy) where in the pre-test it was *instructional*. There were 6 rime word errors in the pre-test and only 1 in the post-test. A number of errors in both tests related to inappropriate matching of short vowel sounds, for example 'run' for 'ran' and 'fill' for 'fell'. However in the post-test three self-corrections related specifically to these errors. There were also two examples of self-corrections for rime words – 'people' changed to 'pole' and 'cut' changed to 'cute'.

### **Session texts**

All the session texts were either *instructional* or *easy* for Student C. He worked out the multi-syllabic words in *Junk Mail*. The errors that occurred were mainly related to rime words or short vowel sounds. In the latter sessions he did show evidence of self-correcting both rime words and short vowel sounds.

## **Discussion**

In reflecting on the results of the study there does seem to be support for the hypothesis that explicit teaching of onset and rime units improves prose reading and overall reading accuracy. There is strong evidence from the study to support the notion that recognition of onset and rime can be taught and that it does have an impact on using analogy to read words in isolation. The intervention however, might need to take place over an extended period so that the effects of transfer to prose reading could have more of an impact. As all the students were from ESL backgrounds, the results suggest that not only struggling readers, but also ESL students, are able to benefit from this explicit instruction.

Not all students receiving intervention improved to the same extent. Those who had more gaps in their phonological knowledge seemed to make the most gains. Student A and Student C showed more improvement than Student B. Student A achieved most gains for three and four letter words whereas Student C gained most for four and five letter words. The gains perhaps reflected what they needed to learn next in phonological knowledge. They needed to be able to firstly identify onsets and rimes, segment words into onsets and rimes, and then successfully blend to make words, or a string of sounds that could be a word. All of this was done with words that matched their developmental level.

While this effect could reflect individual points of entry to the learning, improvement could also be influenced by the fact that something in addition to onset and rime could be a gap in

knowledge and might need to be focused on. In the case of Student A, there was the pronunciation of short vowel sounds and the identification and articulation of two- and three-letter onsets that could be retarding her word reading accuracy as well. These may need to be taught explicitly alongside the teaching of onset and rime.

Within the study there was no explicit teaching of sounds in isolation, but there seemed to be some evidence to suggest that phonemic knowledge was also improved during the study. Only rimes and onsets were taught (perhaps with a stronger emphasis on the rime). Evidence from the running records taken on the common text and session texts did reveal improvements in short vowel recognition. Sometimes this was in the form of an incorrect word in the pre-test correct in the post-test, or as a self-correction. There were examples of these for both Student A and Students C. This could mean that teaching rimes where the short vowel sound is constant could provide readers with enough examples for them to make generalisations about letters and associated sounds.

One unexpected outcome of the study was with Student D in the control group. She was the only one in that group that showed improvement in all of the three tests (Appendix 8 ) both her text level and her Rime Unit Test score improved, but it was her word accuracy for the common text, an increase of 10.1% that was greater than any of the other students. In the pre-test she read slowly and hesitantly, with approximately 50% of her errors being non-attempts. This could suggest that there was a nervousness about the initial test and/or lack of confidence to try to decode words. In the post-test she may have been more secure with the routine or may have remembered reading the text and may have been able to bring more meaning to the text the second time around. On the other hand, this could have true of all the students.

It was interesting to note that the average word and prose reading accuracy for both the intervention and control groups improved over the duration of the study. As both of the classes involved were implementing an independent reading routine it raises the question of whether this strategy was also a factor in overall improvement. Does an increase in time spent reading have a positive general effect on the accuracy of prose reading? It could be argued that increased exposure to letter clusters, vocabulary in context, and sentences structures could have a cumulative effect resulting in improved prose reading accuracy. This could account for the fact that all students in the study, whether in the intervention or the control group, improved their reading level over the duration of the study. Most of the students in the control group also achieved improved accuracy for reading words in isolation and reading words in prose.

The results of the current study lend support to the work of Bryant (1998), Howard Allor (2002), Munro (1998) and Nation and Hume (1997) who claim that there is a link between phonological awareness and reading accuracy. The study also supports other research (Ehri, Satlow & Gaskins 2009; Juel & Minden-Cupp 2000; Munro 1998) in the belief that onset and rime can be taught and that it can have a positive impact on prose reading accuracy. During the study two of the students in particular seemed to learn the rime units, were able to manipulate onsets and rimes to make new words, and were able to use this knowledge when reading prose. The results also support Ehri, Satlow, & Gaskins (2009) who found that explicit instruction in phonological knowledge did assist *struggling readers*. The participants in the current study were not only



struggling readers, but were also students from an ESL background whose speaking and listening was still developing.

In relation to the debate concerning the relative effectiveness of using phonemes or sound patterns (such as onset and rime) as the basis for decoding words (Nation & Hume 1997; Bryant 1997; Howard Allor 2002), the current study tends to support the work of Juel and Minden-Cupp (2002) and Ehri, Satlow, and Gaskins (2009) who suggest that the outcomes of instruction focusing on onset and rime would be improved when accompanied with instruction on phonemic segmentation and blending, or at least that this would be beneficial for some students. Student C seemed to increase his phonemic knowledge through working with onset and rime. He showed some improvement in identifying short vowel sounds in words. Student A seemed to show a similar trend, but needed extra support with the pronunciation of some phonemes and with segmenting and blending consonant phonemes in onsets. This supports the notion that not all learners benefit from the same instruction equally and that the form instruction takes may need to vary within and between cohorts (Juel & Minden-Cupp 2002; Ehri, Satlow, & Gaskins 2009).

This study offers a number of implications for teaching. While explicit teaching of onset and rime to improve prose reading accuracy was shown to be successful at the Middle Primary level, it would be preferable to ensure that this teaching occurs in the early years (P-2). Students who reach Years 3 and 4 without competent decoding skills are disadvantaged. They miss out on the content gained from texts, but also are not best able to develop deeper comprehension skills as well as their already efficient decoding peers.

For ESL students, where the interference from the first language can influence English language learning, additional instruction may need to be included re pronunciation of certain English sounds and structure of words. Extra instruction could also be include identifying and manipulating rimes where the rime is present in words that have prefixes or suffixes added, for example *sailing* and *bricks*.

The study also seems to suggest that any instruction program should be cognisant of the individual learning needs of students and to ensure that any gaps in phonological knowledge are incorporated into the sessions. Aspects of the sessions that seemed to contribute to the success of the learning were: manipulation of the onsets and rimes to make new words, rapid automatised naming of words with targeted rimes, and reading texts with the targeted rimes. Each session also began with some time to reinforce what had already been taught. The fact that the sessions were daily (as far as that was possible), also could have been a factor in the successful uptake of learning. In a classroom there could be short daily chunks of time that could be used to reinforce what is being learned. In this way the learning can be taken from the short term to long term memory.

Poor decoders are generally not fluent readers. The increase in word and prose reading accuracy during the study did not necessarily result in increased phrasing and fluency. Word by word reading is not conducive to effective comprehension of texts. Perhaps then, explicit teaching of phonological knowledge needs to be coupled with attention on phrasing and fluency, and thus comprehension.

The results suggest that teaching onset and rime, is a successful strategy and needs to be explicitly taught to assist students who are struggling to decode texts. Some students may also need explicit teaching of phonemic segmentation and blending. While there was some evidence within the current study that the teaching of onset and rime can have a positive effect on phonemic awareness, it would be interesting to investigate for which students this is the case, and for which students there is a need to provide additional instruction focused on phonemic knowledge, or whether a combination approach is more effective for all students.

An interesting question arising from the study concerns other factors that might have an influence on prose reading accuracy. Both the intervention and control groups improved their overall reading level over the duration of the study. At the time both classes were implementing an independent reading routine which involved the students in reading and responding to texts for at least 45 minutes each day. Another area of possible study could be to what extent the quantity and/or quality of time spent reading per day has a beneficial impact on decoding skills.

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# Appendix

## Appendix 1

### RIME UNIT FOCI ACROSS THE 10 SESSIONS

session	targeted rime	words	text	Fry's Readability Level
1	ay, op, ug	day stay may way pay hop mop shop flop pop drop hug rug slug bug Zug glug snug jug	Zug the Bug	Year 1
2	ot, ap	pot hot lot got rot plot shot spot not dot cot sap cap tap trap flap clap map snap rap gap lap nap	Dot and the Birds	Year 2
3	it, at	sit bit fit lit pit hit mit cat mat fat bat flat pat rat hat that chat	Kitty Cat and Fat Cat	Year 1
4	lp, aw	ship flip lip pip hip sip clip chip drip snip trip saw paw raw draw claw	A Trip to the Park	Year 2
5	unk, ail	sunk junk bunk chunk dunk sail tail mail nail snail trail rail fail quail	Junk Mail	Year 2
6	ab, ick	sick brick flick stick quick pick tick dab, lab, tab, stab, crab, grab, tab, crab, grab, dab	The Quick Crab	Year 2
7	oke, eat	smoke broke woke poke spoke coke stroke bloke meat speak beat cheat treat heat seat neat	The Camping Trip	Year 2
8	ide, ack	hide pride slide bride ride side wide sack pack rack black track back smack	Jack's Ride	Year 2
9	ine, ate	mine fine shine spine line vine wine gate late mate state hate plate date	Kate's New Bike	Year 2
10	ain, ore	pain train drain chain strain main gain grain vain sore more shore snore core tore chore store		

## Appendix 2

### POWERPOINT PROGRAM

target rime	words
<b>ug</b>	Zug, hug, mug, jug, dug, bug, Pug, snug, glug, slug
<b>ap</b>	lap, tap, cap, snap, lap, clap, flap, rap snap, strap
<b>ot</b>	got, hot, not, spot, pot, shot, pot, lot, plot, rot
<b>at</b>	mat, cat, hat, that, rat, that, bat, flat, chat, spat
<b>it</b>	sit, fit, hit, bit, mit, lit, bit, sit, fit, pit
<b>aw</b>	law, paw, raw, saw, jaw, claw, draw, flaw, thaw, straw
<b>ip</b>	ship, pip, hip, drip, sip, snip, clip, rip, trip, chip
<b>unk</b>	junk, sunk, bunk, chunk, dunk, junk, chunk, bunk, sunk, dunk
<b>ail</b>	mail, sail, nail, snail, tail, rail, fail, trail, quail, snail
<b>ab</b>	dab, lab, tab, stab, crab, grab, tab, crab, grab, dab
<b>ick</b>	sick, pick, tick, stick, brick, quick, flick, tick, stick, brick
<b>oke</b>	coke, poke, woke, broke, spoke, smoke, coke, broke, choke, stroke
<b>eat</b>	Meat, heat, seat, cheat, seat, speak, neat, treat, cheat, heat
<b>ide</b>	ride, side, wide, bride, tide, slide, hide, wide, side, slide
<b>ack</b>	pack, sack, back, shack, wack, black, Jack, smack, stack, crack
<b>ide</b>	hide, slide, side, wide, bride, ride, hide, pride, slide, wide
<b>ine</b>	mine, fine, spine, line, mine, vine, wine, spine, mine, line
<b>ate</b>	gate, state, hate, date, plate, gate, mate, late, date, state

TEXTS

Dot and the Birds

It was a hot day. Dot had put the baby in the cot to go to sleep and went outside to get some water from the tap. She did not want to go out in the sun to pick the apples, but she had to take them to market the next day. She put on her cap and walked to the tree. There were birds in the tree. They liked the apples too. She gave a clap and heard the flap of wings. It was the birds flying away. Not a lot of the apples had bite marks in them, so that was good. She still had plenty to take to the market.



## **Kitty Cat and Fat Cat**

**Kitty Cat likes to sit on the mat in the sun. The sun was hot on her skin. She saw Fat Cat on the chair in the garden.**

**“I like that chair”, says Kitty Cat. “That would be a good place to sit, but Fat Cat is on the chair.”**



**Kitty Cat went bit by bit up to the chair. Fat Cat’s tail was swinging. Kitty Cat looked at the tail. Then she bit the tail.**

**“Miooww!!!” shouted Fat Cat. He spat at Kitty Cat and jumped off the chair. He ran after her, but Kitty Cat ran across the flat ground and went into the house.**

**Fat Cat did not fit in the little door. Kitty Cat was safe.**

## The Trip to the Park

Skip and Dot and their dog Nip went to the park. The park had swings and an old ship to play on. Nip liked to run around the ship. He would jump up the top and down again. He put his paw on the wheel and looked like a real sailor!

Sam and Dot liked the see-saw the best. They would get on each end and get a good grip. The seat would tip up and down. They would play on it for a long time. They were careful not to slip because a fall might hurt a bit.

On the way home they saw a shop for fish and chips. They were hungry. Dot pulled the zip on her bag and got out her money. She had five dollars. That was enough for chips and some fish. When they got the food Nip looked up at them. He had a drip coming from his jaw.

“I think he wants some chips”, said Skip. So they gave him some.





## Junk Mail



**Do you get a lot of junk mail? Junk mail is all those papers or magazines that come to sell you something. They fill up your letterbox. Sometimes junk mail comes from the hardware shop. You can see pictures of hammers and nails and screws and all the things you need to make something at home.**

**Sometimes you get junk mail from Target or K-Mart. The shops want you to buy toys. There are pictures of dolls and games. You might see a toy train set with railways and houses. Or you might see boats that you can sail or a trunk full of treasure.**

**Some shops want your parents to buy things for the house. In the magazines there might be pictures of beds and bunks, tables and chairs, and lights. Do you think it's a good idea to have so much junk mail?**

## The Quick Crab

Dick and Jenny went to the beach for the day. They wanted to go for a walk on the rocks to see what they could find. They liked to pick up things to put in their cubby at home. Often there were lots of things washed up there.

As they walked along they saw a crab's claw sticking out from under a rock. It was a bright red colour.

“That would be good for our cubby”, said Jenny.

Dick went to grab it, but it quickly disappeared!

“Let's pick up the rock and see if we can find it”, shouted Dick.

Jenny found a stick and flicked the rock, but the crab was too quick. It ran under an old pile of bricks. They were too heavy to lift. The crab had tricked them.

“I don't think a crab would be good in our cubby anyway. Let's find something else,” said Jenny.



## The Camping Trip

Brad and Sam and their family went camping for the weekend. When they got there they put up the tents and lit a fire. There was lots of smoke at first. They had a barbeque that night with meat they had brought. Mum also had a treat for them – marshmallows! They put them on sticks and heated them in the fire. Yum! They were good to eat.

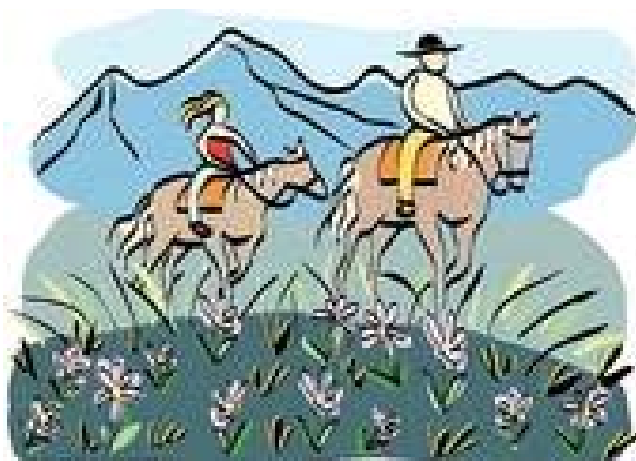
After they had finished eating they sat around the fire and told scary stories. They sat on seats they had made from logs. It was cold so they enjoyed the heat from the fire.

Then they heard a beating noise not far away in the bush! No one spoke. What could it be? Sam gave Brad a poke and pointed to the trunk of a tree near one of the tents.

It was a koala!



## Jack's Ride



Jack went to visit his friend Sam on her farm. He often stayed for the weekend and they liked to go horse riding. Sam had two horses on her farm. One was brown and the other was black.

This weekend Sam wanted to go down an old track that led to a creek near the hills. As it was going to take them a long time to get there they packed lunch in a backpack. They took sandwiches and fruit and a bottle of water each.

They left at ten o'clock and got to the creek by twelve. They tied up the horses and sat down beside a tree to have a snack. The side of the creek there was steep. Jack went over to look at the water and tripped. He began to slide down the bank to the creek.

“Help”, he yelled.

Sam was quick. She jumped up and grabbed a long stick. She held it out to Jack. Jack held onto the stick with one hand and slowly pulled himself back up the bank.

“Phew, that was close! I think I’ll just stay back here and watch the creek from this tree.”

## **Kate's New Bike**



**Tim and Kate lived next door to each other. Tim got a new bike for his birthday so he didn't need his old bike anymore.**

**His dad said, "Why don't we give it to Kate next door. She rode her bike into the gate and it doesn't work anymore."**

**"That's a good idea. We could paint it to make it look as good as mine", said Tim. So Tim and his dad painted the bike yellow and made it shine just like new.**

**After school Tim waited for Kate to come home. He wanted to surprise her. He hid the bike behind the vine in the garden. Kate was a bit late home, but when he saw her he ran and said there was something for her in the garden.**

**When she saw the bike she was so happy.**

**"You're a good mate, Tim".**

## Appendix 4

### SESSION STRUCTURE

Time	Task	Description
10 min	<p>Running record on previous session's text.</p> <p>Reinforcement of previous day's session.</p>	<p>Students one by one read previous session's text to the teacher.</p> <p>Other students independently reinforce the rimes from previous sessions by:</p> <ul style="list-style-type: none"> <li>• finding rhyming pairs of pictures and articulate the rime(early sessions),</li> <li>• In pairs or individually playing computer rime powerpoint,</li> <li>• Individually taking a pack of flashcards of words with rimes and saying them as quickly as they can.</li> </ul>
10 min	<p>Introduction of the new rime.</p> <p>Breaking the word.</p> <p>Making other words with the same rime.</p> <p>Using self talk .</p>	<p>Students read the sentence with targeted rime, say the word when it is seen removed from the text, and explain the meaning if necessary.</p> <p>Using the magnetic letters, the students break the word into onset and rime and then substitute another onset to make a new word. The onsets are on the white board for them to use. Given appropriate onsets the students use the magnetic letters to add onsets to the rimes to make new words.</p> <p>They brainstorm words that have the same rime. Either teacher or students write the words.</p> <p>Using the onset and rime cards the student make new or nonsense words and articulate them.</p>
2 min	Rapid automatised naming	The students as a group or individually go through flashcards saying the words (with targeted rimes) as fast as they can.
10 min	<p>Text reading</p> <p>Guided Reading Strategy</p>	<p>The students discuss as a group a response to the tuning in prompt.</p> <p>They read the text independently.</p> <p>They clarify (with the support of the teacher)any words they were not sure of.</p> <p>The students have a discussion with the teacher around the focus for reading (meaning).</p> <p>They highlight words which have the targeted rime unit.</p>
5 min	Complete Word Book	<p>The teacher writes or the students think of a word (with the targeted rime) that they know well and write it in the top section of the page.</p> <p>They then think of all the words they can write that have the same rime and write them in their books.</p>
2 min	<p>Review</p> <p>Meta-language</p>	<p>They reflect on what they have learned.</p> <p>They use a script to assist their self-talk, e.g., "If I can read <i>cake</i> then I can read <i>poke</i>."</p>

## Appendix 5

### SESSION PLANS

#### Session 1

time	teacher	student
10 min	Placed cards (pictures of rhyming pairs) on the table. Asked students to say the names of the words. <i>Find two pictures that rhyme, sound the same at the end.</i> <i>What can you hear that's the same?</i>	Said names of pictures. Students found two picture cards that rhymed, said the words, said what sounded the same at the end.
10 min	Read sentence with targeted rime. "On the way to school we found a bug on top of the bin". Look at word in isolation: <b>way</b> Demonstrated breaking word into two parts (onset and rime).  Showed two words: <b>way, day</b> Said the words. <i>What sounds the same?</i> <i>What looks the same?</i> Demonstrated how to substitute the first letter to make other words. Did other examples: <b>bug/jug, top/hop</b>  On the floor, spread cards with the onsets ( <b>d, m, w, p, h, p, r, b, Z, j</b> ) and rimes ( <b>op, ay, ug</b> ). Demonstrated putting onset with rimes to make words and saying the words.	Read the sentence.  Watched teacher break the word into onset and rime. Broke words into two parts (onset and rime).  Articulated what sounds the same and what looks the same.  Made other words by substituting the first letter to make other words.  Put onset and rime together to make new words.
2 min	Gave students word cards with the targeted rime.	Read words quickly (op, ug, ay)
10 min	Read <i>Zug the Bug</i> using Shared Reading strategy	Discussed meanings of words. Discussed text. Found words that had the <b>ug</b> rime.
5 min	Introduced <i>My Word Book</i>	Added an initial letter to make a word that they knew for <b>ay, op, ug</b> . Wrote 3 other words that they knew. To find more words for homework.
2 min	Review Modelled the script "If I can write <b>day</b> then I can write <b>way</b> ".	Said the script for each page of their Word Book.

Session 2

time	teacher	student
10 min	Placed cards (pictures of rhyming pairs, including some new ones) on the table. Demonstrated once and then expected them to do it turn by turn.	Said names of pictures. Students found two picture cards that rhymed, said the words, and said what sounded the same at the end.
10 min	Read sentence with targeted rime "It was a hot day so Jack put his cap on". Two words out of magnetic letters on the whiteboard: <b>cap, map</b> <i>What sounds the same?</i> <i>What looks the same?</i>  cap t, m, r, g, l, n  Demonstrated making new words by changing the beginning. Did other examples: <b>not, hot</b> Wrote 'ot' and 'ap' on the board. Asked students to think of words that have the same ending. Wrote words as students gave them. Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other. On the floor, spread cards with the onsets ( <b>p, h, l, g, r, n, d, c, s, m</b> ) and rimes ( <b>ot, ap</b> ). Demonstrated putting onset with rimes to make words and saying the words	Read the sentence.  Identified what sounded the same and what looked the same.  On the whiteboard students individually substituted the first letter to make another word and then made cap again. Brainstormed words that have 'ot' and 'ap' at the end.  Clarified word meanings for each other. Meaning  Put onset and rime together to make new words.
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	Read <i>Dot and the Birds</i> using Shared Reading strategy.	Read the text together with the teacher. Discussed the text. Clarified the meanings of some words. Highlighted words with 'ap and 'ot'.
5 min	Wrote the new rimes on the next pages. Asked students to words with that rime in the spaces on the page.	Added an initial letter to make a word that they knew for <b>-ot, -ap</b> . Wrote words that they knew with that rime. To find more words for homework.
2 min	Review <i>Remember yesterday we said:</i> 'If I can write <b>day</b> then I can write <b>pay</b> '. Say that for this page. <i>We can also say,</i> 'If I can read <b>not</b> then I can also read <b>hot</b> . <i>Say that for a page in your book.</i>	Said the script for the new pages of their Word Book.



Session 3

time	teacher	student
10 min	Took running record on "Dot and the Birds".	Each read yesterday's text to teacher. Played rhyme game. Read the onset/rime presentation on computer (ug).
10 min	<p>Read sentence with targeted rime "Can you sit on the mat?".</p> <p>Made two words with magnetic letters on the whiteboard: <b>sit, fit</b></p> <p><i>What sounds the same?</i></p> <p><i>What looks the same?</i></p> <p style="text-align: center;"><b>sit</b></p> <p style="text-align: center;"><b>b, f, l, p, h, m</b></p> <p><i>Make new words by changing the beginning.</i></p> <p>Did other examples:</p> <p style="text-align: center;"><b>mat</b></p> <p style="text-align: center;"><b>f, b, fl, p, r, h, th, ch</b></p> <p>Wrote <b>it</b> and <b>at</b> on the board.</p> <p>Wrote words as students gave them.</p> <p>Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other.</p> <p>On the floor, spread cards with the onsets (<b>b, f, l, p, h, m, fl, r, th, ch</b>) and rimes (<b>it, at</b>).</p> <p>Demonstrated putting onset with rimes to make words and saying the words.</p>	<p>Read the sentence.</p> <p>Said the two words.</p> <p>Identified what sounded the same and what and looked the same.</p> <p>Substituted the onset to make another word.</p> <p>Brainstormed words that have <b>at</b> and <b>it</b> at the end.</p> <p>Clarified word meanings for each other.</p> <p>Put onsets and rimes together to make new words.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	Used Guided Reading with the text <i>Kitty Cat and Fat Cat</i> .	Read the text independently. Discussed the text. Clarified the meanings of some words. Highlighted words with <b>it</b> and <b>at</b> .
5 min	Wrote the new rimes on the next two pages in the students' Word Book. Asked students write words that look and sound the same at the end in the spaces on each page.	Added an initial letter to make a word that they knew for <b>-at, -it</b> . Wrote words that they knew with that rime. To find more words for homework.
2 min	<p>Review</p> <p><i>Remember yesterday we said:</i></p> <p>'If I can write <b>day</b> then I can write <b>pay</b>'.</p> <p><i>Say that for this page.</i></p> <p><i>We can also say, 'If I can read <b>not</b> then I can also read <b>hot</b>.</i></p> <p><i>Say that for a page in your book.</i></p>	Said the script for the new pages of their Word Book.

Session 4

time	teacher	student
10 min	Took running record on "Kitty Cat and Fat Cat".	Each read yesterday's text to teacher. Played rhyme game and read the onset/rime presentation on computer (ot, ap).
10 min	<p>Made two words with magnetic letters on the whiteboard: <b>ship, lip</b>  <i>What sounds the same?</i>  <i>What looks the same?</i></p> <p style="text-align: center;"><b>ship</b></p> <p style="text-align: center;"><b>fl, l, p, h, n, s, cl, dr, ch, sn, tr</b></p> <p>Make new words by changing the beginning.            Did other examples: <b>saw, paw</b>  <b>p, r, dr, cl,</b></p> <p>Wrote <b>ip</b> and <b>aw</b> on the board.            Wrote words as students gave them.            Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other.</p> <p>On the floor, spread cards with the onsets (<b>fl, l, p, h, n, s, cl, dr, ch, sn, tr, r,</b>) and rimes (<b>ip, aw</b>).            Asked students to put onset with rimes together to make words and saying the words.            Demonstrated making nonsense words.            Wrote these words on the whiteboard.            Asked students to check if any of these were words.</p>	<p>Identified what sounded the same and what looked the same.</p> <p>Substituted the onset to make another word.</p> <p>Brainstormed words that have <b>ip</b> and <b>aw</b>. at the end.</p> <p>Clarified word meanings for each other. Meaning</p> <p>Put onset and rime together to make new words.            Put onset and rim together to make nonsense words.            Students checked to see if any were real words.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually
10 min	Used Guided Reading with the text <i>A Trip to the Park</i> . Asked students to identify any words they were not sure of. Helped them to clarify any words.	Read the text independently. Clarified the meanings of some words. Discussed text. Highlighted words with <b>ip</b> and <b>aw</b> .
5 min	Wrote the new rimes on the next pages. Asked students to words with that rime in the spaces on the page.	Added an initial letter to make a word that they knew for <b>-ip, -aw</b> . Wrote words that they knew with that rime. To find more words for homework.
2 min	Review <i>Remember we can say:</i> 'If I can write <b>saw</b> then I can write <b>paw</b> '. <i>Say that for this page.</i> <i>Remember we can also say, 'If I can read <b>not</b> then I can also read <b>hot</b>.</i> <i>Say that for a page in your book.</i>	Said the script for the new pages of their Word Book.

Session 5

time	teacher	student
10 min	Took running record on <i>A Trip to the Park</i> .	Each read yesterday's text to teacher. Read word cards (from previous sessions) individually as quickly as possible. Read the onset/rime presentation on computer ( <i>it, at, aw</i> ).
10 min	Two words out of magnetic letters on the whiteboard: <i>tail, mail</i> <i>What sounds the same?</i> <i>What looks the same?</i>  tail n, s, sn, tr, m, r <i>Make new words by changing the beginning.</i> Did other examples: <i>bunk, trunk</i> p, dr, cl, s, tr, j Wrote <i>ail</i> and <i>unk</i> on the board. Wrote words as students gave them. Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other. On the floor, spread cards with the onsets ( <i>fl, l, p, h, n, s, cl, dr, ch, sn, tr, r,</i> ) and rimes ( <i>ip, aw</i> ). Asked students to putt onset with rimes together to make words and saying the words. Asked students to make nonsense words. Wrote these words on the whiteboard. Asked students to check if any of these were words.	Identified what sounded the same and what looked the same.  Substituted the onset to make another word.  Brainstormed words that have <i>ail</i> and <i>unk</i> at the end.  Clarified word meanings for each other. Meaning  Put onset and rim together to make nonsense words. Put onset and rim together to make nonsense words. Put onset and rime together to make new words.
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	Used the Guided Reading strategy with the text <i>Junk Mail</i> . Asked students to identify any words they were not sure of. Helped them to clarify any words.	Read the text independently. Clarified the meanings of some words.  Discussed the text. Highlighted words with <i>ail</i> and <i>unk</i> .
5 min	Wrote the new rimes on the next pages. Asked students to words with that rime in the spaces on the page.	Added an initial letter to make a word that they knew for <i>-unk, -ail</i> . Wrote words that they knew with that rime. To find more words for homework.
2 min	Review <i>Remember we can say:</i> <i>'If I can write <b>saw</b> then I can write <b>paw</b>'.</i> <i>Say that for this page.</i> <i>We can also say, 'If I can read <b>tip</b> then I can also read <b>clip</b>.</i> <i>Say that for a page in your book.</i>	Said the script for the new pages of their Word Book.

Session 6

time	teacher	student
10 min	<p>Took running record on <i>Junk Mail</i>.</p> <p>Dictated words from previous sessions.</p>	<p>Each read yesterday's text to teacher.</p> <p>Read word cards (from previous sessions) individually as quickly as possible.</p> <p>Read the onset/rime presentation on computer (<i>ip, unk, ail</i>).</p> <p>Wrote words dictated by teacher.</p>
10 min	<p>Made word out of magnetic letters on the whiteboard.</p> <p style="text-align: center;"><i>crab</i></p> <p style="text-align: center;"><i>gr, t, j, d, st</i></p> <p><i>Make new words by changing the beginning.</i></p> <p style="text-align: center;"><i>sick</i></p> <p style="text-align: center;"><i>b, t, l, k, p, t, st, p, th, qu, fl, br</i></p> <p><i>Make new words by changing the beginning.</i></p> <p>Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other.</p> <p>On the floor, spread cards with the onsets (<i>b, t, l, k, p, t, st, p, th, qu, fl, br, gr, j, d,</i>) and rimes (<i>ick, ab</i>).</p> <p>Asked students to putt onset with rimes together to make words and saying the words.</p> <p>Asked students to make nonsense words.</p> <p>Wrote these words on the whiteboard.</p> <p>Asked students to check if any of these were words.</p>	<p>Substituted the onset to make other words.</p> <p>Wrote these words on paper.</p> <p>Students wrote words that have <i>ick</i> and <i>ab</i> at the end.</p> <p>Clarified word meanings for each other.</p> <p>Put onset and rime together to make nonsense words.</p> <p>Put onset and rime together to make new words.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	<p>Used the Guided Reading strategy with the text "The Quick Crab".</p> <p>Asked students to identify any words they were not sure of.</p> <p>Helped them to clarify any words.</p>	<p>Read the text independently.</p> <p>Clarified the meanings of some words and phrases.</p> <p>Discussed the text.</p> <p>Highlighted words with <i>ab</i> and <i>ick</i>.</p>
5 min	Wrote the new rimes on the next pages. Asked students to words with that rime in the spaces on the page.	<p>Added an initial letter to make a word that they knew for <i>-ick, -ab</i>.</p> <p>Wrote words that they knew with that rime.</p> <p>To find more words for homework.</p>
2 min	<p>Review</p> <p><i>Remember yesterday we said:</i></p> <p>'If I can write <i>saw</i> then I can write <i>paw</i>'.</p> <p><i>Say that for this page.</i></p> <p><i>Remember we can also say, 'If I can read sick then I can also read pick.</i></p> <p><i>Say that for a page in your book.</i></p>	Said the script for the new pages of their Word Book.

Session 7

time	teacher	student
10 min	<p>Took running record on <i>The Quick Crab</i></p> <p>Dictated words (from previous sessions)for students to write.</p>	<p>Each read yesterday’s text to teacher.</p> <p>Played rhyme game and read the onset/rime presentation on computer (<b>ab, ick, unk, it</b>).</p> <p>Wrote words that were dictated.</p>
10 min	<p>Made word out of magnetic letters on the whiteboard.</p> <p style="text-align: center;"><b>meat</b></p> <p style="text-align: center;"><b>s, b, h, n, sp, tr, ch</b></p> <p><i>Make new words by changing the beginning.</i></p> <p style="text-align: center;"><b>coke</b></p> <p style="text-align: center;"><b>p, str, br, sp, sm, w</b></p> <p><i>Make new words by changing the beginning.</i></p> <p>Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other.</p> <p>On the floor, spread cards with the onsets (<b>s, b, h, n, sp, tr, ch, p, str, br, sm, w</b>) and rimes (<b>eat, oke</b>). Asked students to putt onset with rimes together to make words and saying the words.</p> <p>Asked students to make nonsense words. Wrote these words on the whiteboard. Asked students to check if any of these were words.</p>	<p>Substituted the onset to make other words and wrote these on a large piece of paper (words that have <b>eat</b> and <b>oke</b> at the end).</p> <p>Clarified word meanings for each other. Meaning.</p> <p>Put onset and rime together to make new real or nonsense words. Wrote these on paper. Checked which words were real and which were nonsense.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	<p>Used the Guided Reading strategy with the text <i>The Camping Trip</i>.</p> <p>Asked students to identify any words they were not sure of.</p> <p>Helped them to clarify any words.</p>	<p>Read the text independently.</p> <p>Clarified the meanings of some words.</p> <p>Discussed the text.</p> <p>Highlighted words with <b>oke</b> and <b>eat</b>.</p>
5 min	<p>Asked students to write a word (with the targeted rime)that they knew well at the top of the page in their Word Book. Asked students to write words with that rime in the spaces on the page.</p>	<p>Wrote a word containing the targeted rimes that they knew well.</p> <p>Wrote words that they knew with that rime. To find more words for homework.</p>
2 min	<p>Review</p> <p><i>Good readers break words into parts to help them read unfamiliar words. We can say:</i></p> <p>‘I can break words into parts to help me read a word I don’t know’.</p> <p><i>Find a word in your book that you can break into parts. Say:</i></p> <p>“I can break ---- into ---- and ----“.</p>	Chose words from their Word Book to say the script with.

Session 8

time	teacher	student
10 min	Took running record on <i>The Camping Trip</i> .  Dictated words for students to write.	Each read yesterday's text to teacher. Read the onset/rime presentation on computer ( <i>oke, eat, ail, it</i> ). Wrote words that were dictated.
10 min	Made words out of magnetic letters on the whiteboard.  <i>ride</i> Asked students to give words that have the same ending. Wrote words given by students in either the <i>word</i> or <i>nonsense word</i> column.  <i>back</i> Same as above. Clarified the meaning of unknown words or guided students to clarify meaning for each other.  On the floor, spread cards with the onsets ( <i>h, pr, sl, br, r, s, w, p, bl, tr, b, sm</i> ) and the rimes ( <i>ide, ack</i> ). Asked students to put onset with rimes together to make words, real or nonsense.  Wrote these words on the whiteboard. Asked students to check if any of these were words.	Students said words words that have <i>ide</i> and <i>ack</i> at the end and said whether it was a word or a nonsense word.  Clarified word meanings for each other. Meaning  Put onset and rime together to make new real or nonsense words. Wrote these on paper. Checked which words were real and which were nonsense.
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	Used the Guided Reading strategy with the text <i>Jack's Ride</i> Asked students to identify any words they were not sure of. Helped them to clarify any words.	Read the text independently. Clarified the meanings of some words. Discussed the text. Highlighted words with <i>ide</i> and <i>ack</i> in the text.
5 min	Asked students to write a word (with the targeted rime)that they knew well at the top of the page in their Word Book. Asked students to write words with that rime in the spaces on the page.	Wrote a word containing the targeted rimes that they knew well. Wrote words that they knew with that rime. To find more words for homework.
2 min	Review <i>Good readers break words into parts to help them read unfamiliar words. We can say:</i> 'I can break words into parts to help me read a word I don't know". <i>Find a word in your book that you can break into parts. Say:</i> "I can break ---- into ---- and ----".	Chose words from their Word Book to say the script with.

Session 9

time	teacher	student
10 min	<p>Worked with Student A. Made the following words out of magnetic letters: <b>hat,</b></p> <p>Demonstrated breaking the words into onset and rime. Asked Student A to break the following words: <b>stay, chip</b> showed onsets on cards. Dictated words (last session's words) for students to write</p>	<p><b>Students B and C</b> Read the onset/rime presentation on computer (<b>ide, ack, ug, unk</b>). Read previous sessions words (with targeted rimes) quickly individually. <b>Student A:</b></p> <ul style="list-style-type: none"> <li>broke words into onset and rime. <b>hat, stay, chip</b></li> <li>articulated the following onsets. <b>sp, dr, th, fl, sh, st, ch</b> (on cards)</li> </ul> <p>All students wrote the dictated words.</p>
10 min	<p>Made word out of magnetic letters on the whiteboard. <b>mine</b> Asked students to write words that have the same ending. <b>gate</b> Same as above. Clarified the meaning of unknown words or guided students to clarify meaning for each other. On the floor, spread cards with the onsets (<b>f, m, sh, sp, l, v, w, g, st, f, sl, h, pl, d</b>) and rimes (<b>ine, ate</b>). Asked students to put onset with rimes together to make words. Asked students to write these words on a large sheet of paper. Asked students to check if any of these were words.</p>	<p>Students wrote words that have <b>ine</b> and <b>ate</b> at the end. Clarified word meanings for each other.  Put onset and rime together to make new words. Wrote these on paper. Checked if these were real words.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
10 min	<p>Used the Guided Reading strategy with the text <i>Kate's New Bike</i>. Asked students to identify any words they were not sure of. Helped them to clarify any words.</p>	<p>Read the text independently. Clarified the meanings of some words. Discussed the text. Highlighted words with <b>ine</b> and <b>ate</b>.</p>
5 min	Asked students to write a word (with the targeted rime) that they knew well at the top of the page in their Word Book. Asked students to write words with that rime in the spaces on the page.	<p>Wrote a word containing the targeted rimes that they knew well. Wrote words that they knew with that rime. To find more words for homework.</p>
2 min	<p><i>Good readers break words into parts to help them read unfamiliar words. We can say:</i> <i>'I can break words into parts to help me read a word I don't know'.</i> <i>Find a word in your book that you can break into parts. Say:</i> <i>"I can break ---- into ---- and ----".</i></p>	Chose words from their Word Book to say the script with.

Session 10

time	teacher	student
10 min	<p>Took running record on <i>Kate's New Bike</i>.</p> <p>Dictated words for students to write.</p>	<p>Each read yesterday's text to teacher.</p> <p>Read the onset/rime presentation on computer (<i>ine, ate, oke, aw</i>).</p> <p>Wrote words that were dictated.</p>
10 min	<p>Made word out of magnetic letters on the whiteboard.</p> <p style="text-align: center;"><i>main</i></p> <p>Asked students to write words that have the same ending.</p> <p style="text-align: center;"><i>more</i></p> <p>Same as above.</p> <p>Asked students if they knew the meanings of words. Clarified the meaning of unknown words or guided students to clarify meaning for each other.</p> <p>On the floor, spread cards with the onsets (<i>tr, r, p, v, st, sp, g, gr, dr, b, s</i>) and rimes (<i>ain, ore</i>).</p> <p>Asked students to put onset with rimes together to make words.</p> <p>Asked students to write these words on a large sheet of paper.</p> <p>Asked students to check if any of these were words</p>	<p>Students wrote words that have the same rime as the words on the board.</p> <p>Clarified word meanings for each other meaning.</p> <p>Put onset and rime together to make new words. Wrote these on paper.</p> <p>Checked if these were real words.</p>
2 min	Gave students word cards with the targeted rime.	Read words quickly altogether and then individually.
5 min	Wrote the new rimes on the next pages. Asked students to words with that rime in the spaces on the page.	Added an initial letter to make a word that they knew for <i>-ore, -ain</i> Wrote words that they knew with that rime. To find more words for homework.
2 min	<p>Review</p> <p>Good readers break words into parts to help them read unfamiliar words.</p> <p>'I can break words into parts to help me read a word I don't know'.</p>	Said the script for pages of their Word Book, giving examples.



STUDENT WORD BOOK

ay


COMMON TEXT

**A Kite for Tate and Paul.**

**It was a windy day. Tate and his friend Paul had made a kite out of an old sheet. They wanted to see if they could make it fly. They put on their coats and hats and went outside. Tate and his mate Paul ran out the gate and down the street. They ran all the way to the park. Tate held onto the string then ran. He ran faster and faster and the kite flew up and up and up. The kite began to whirl and twirl in the wind. As Tate ran, one of his feet went down a hole. The sole of Tate's shoe came off. Tate fell and let go of the string. The kite flew away. It hit a pole and fell. A little girl found the kite. Her cute dog had taken a bite out of the kite. "Don't worry. I will fix it," said Tate. "I have to go home now or I will be late for tea," said Paul. "I will fix the kite and we can try to fly it on Sunday," said Tate. "It's a date," said Paul.**

(ERIK)

## Appendix 8

### Data Set for All Students

Student	Control = 0 Intervention = 1	Age in months	Gender Male = 0 Female = 1	Years of Schooling	ESL No = 0 Yes = 1 Born OS = 2	Earlier support None = 0 NA = 1 Ref = 2 R = 3	EMA No = 0 Yes = 1	Attendance No. of sessions	PRE text level	POST text level	PRE common text % words correct	POST common text % words correct	PRE Rime Unit Test % words correct	POST Rime Unit Test % words correct
A	1	108	1	3.5	1	0	1	9	17	18	86.2	93.1	57.1	73.9
B	1	103	0	3.5	1	0	1	10	21	24	86.2	88.5	81.9	87.3
C	1	118	0	4.5	2	1	1	10	23	25	91.5	96.6	75.2	87.3
<b>Averages</b>									20.3	22.3	87.9	92.5	71.4	82.8
D	0	117	1	4.5	2	2	1	0	16	18	80.9	91.0	26.0	34.3
E	0	100	1	3.5	1	0	1	0	19	20	82.5	87.8	69.2	68.5
F	0	107	0	3.5	2	2	1	0	19	21	93.1	89.9	78.6	84.3
<b>Averages</b>									18.0	19.6	85.5	89.5	57.9	62.3

EMA Educational Maintenance Allowance

OS Overseas

NA New Arrival

Ref Refugee

## Appendix 9

### RIME UNIT TEST

	Total number of words		3 letter words correct (24)		4 letter words correct (74)		5 letter words correct (51)		increase in number of words correct
	pre	post	pre	post	pre	post	pre	post	
<b>Student A</b>	<b>85</b>	<b>111</b>	<b>13</b>	<b>19</b>	<b>48</b>	<b>63</b>	<b>24</b>	<b>29</b>	<b>26</b>
<b>Student B</b>	<b>122</b>	<b>127</b>	<b>22</b>	<b>23</b>	<b>62</b>	<b>63</b>	<b>38</b>	<b>41</b>	<b>5</b>
<b>Student C</b>	<b>113</b>	<b>131</b>	<b>21</b>	<b>21</b>	<b>57</b>	<b>69</b>	<b>35</b>	<b>41</b>	<b>18</b>
<b>Student D</b>	<b>42</b>	<b>50</b>	<b>9</b>	<b>11</b>	<b>27</b>	<b>32</b>	<b>6</b>	<b>7</b>	<b>8</b>
<b>Student E</b>	<b>103</b>	<b>100</b>	<b>22</b>	<b>23</b>	<b>51</b>	<b>52</b>	<b>30</b>	<b>25</b>	<b>-3</b>
<b>Student F</b>	<b>114</b>	<b>125</b>	<b>23</b>	<b>24</b>	<b>59</b>	<b>64</b>	<b>32</b>	<b>37</b>	<b>11</b>

Raw scores for Rime Unit Test

## Appendix 10

### SESSION TEXTS

	texts							
students	Dot and the Birds	Kitty Cat and Fat Cat	A Trip to the Park	Junk Mail	The Quick Crab	The Camping Trip	Jack's Ride	Kate's New Bike
A	93.0	93.2	93.5	89.7	94.1	93.0	90.1	93.3
B	96.5	93.0	92.4	87.6	95.4	94.4	92.1	94.8
C	99.2	94.9	93.2	95.9	95.1	95.8	93.6	96.7

Accuracy rates for session texts