

Teaching Year 3 & 4 students, who are accurate decoders to comprehend and contextualise unfamiliar words through the use of a 5-step strategy incorporating synonyms, will increase their reading comprehension.

Abstract

Research indicates a clear relationship between vocabulary development and reading comprehension. Successful readers add up to 7 new words to their word banks daily but the 'struggling' readers may only add 1 or 2. Therefore explicit instruction in learning vocabulary (in context) is important. The hypothesis of the study was that teaching Year 3 & 4 students, who are accurate decoders to comprehend and contextualise unfamiliar words through the use of a 5-step strategy incorporating synonyms, will increase their reading comprehension. This study examined the effects of explicit teaching of a 5-step strategy to Year 3 & 4 students to assist them to define unfamiliar words and generate synonyms in order to improve their reading comprehension ability. The students involved in the study were Year 3 and 4 children with mainly ESL backgrounds. This group of 8 students formed a focus group working with the teacher over 12 X 40 minute sessions. A control group was formed and these students received no intervention other than the regular classroom program. In comparing the results of the two groups it is clear that the 5-step strategy had significant impact on the reading comprehension ability of the students. The pre-test results indicated a need for explicit teaching of vocabulary and the success of the post-test results supports this assertion. Empowering students with self-maintaining strategies as part of daily classroom practice would significantly improve literacy outcomes.

Introduction

Students in the lower end of the school are taught to be decoders first and foremost. These students read texts with high word recognition accuracy but rarely engage with text beyond the literal level. They are at best able to retell a narrative by briefly describing the who, when, where and what of the story. There are also inherent difficulties in engaging with non-fiction text where the reader is required to be proficient in identifying and interpreting language for specific learning. By the time students reach the middle years of school they are efficient decoders but lack the necessary skills to go beyond literal comprehension.

There are many factors that contribute to successful reading comprehension. Reading comprehension is multi-faceted and requires the student to bring a range of abilities to the text. Factors such as level of interest, motivation, level of engagement and affecting engagement, cultural background, knowledge of language conventions, language ability and cognitive abilities work together collectively to effect reading behaviour and comprehension.

In a study conducted by Roth, Speece, and Cooper (2002) regarding the correlation between oral language and early reading acquisition it became apparent that higher order oral language skills were influential in reading skill acquisition and increased in importance as the student progressed. As part of the study they set out to determine the variables most important to reading. The results of the study indicated that semantic ability and print awareness were most important for reading comprehension. The two main semantic skills most necessary for successful reading comprehension were identified as oral definitions and word retrieval. Other studies (Dickinson & Snow, 1987; Snow, 1991; Snow, Cancino, Gonzalez, & Shriberg, 1989) support these results. They too show that students' reading comprehension is linked with their ability to define words.

Griffin (1998), in her thesis regarding oral language proficiency and reading comprehension skill, identified four major factors predictive of reading comprehension. She noted that *word recognition*, *vocabulary knowledge*, *background knowledge*, and *text exposure* were of crucial support to comprehension success (Cain, 1996; Griffin et al., 1998; Oakhill, 1993; Roth et al., 1996). Research conducted by (Lesgold & Resnick, 1982) showed improved word recognition skills correlated with improved reading comprehension performance.

She went on to quote Anderson & Freebody, 1981; and Daneman, 1991 who stated, “students who struggle to understand words encountered in a text have more difficulty constructing the overall meaning of a text than students with well-developed vocabularies.’ Teaching the use of synonyms in context of the reading comprehension process can help to address the issue of poor reading comprehension. In the process of identifying key words across a range of texts students build upon their word recognition skills, their vocabulary knowledge, use and extend their topic knowledge and extend their exposure to rich and varied texts.

The present investigation aims to support and build upon the earlier research by examining the effect of explicit teaching of the use of synonyms in reading. The students concerned are proficient decoders and comprehend at the literal level. With good questioning and familiar texts they are able to engage in inferential comprehension as a group but find it difficult to do the same independently with unfamiliar texts.

The hypothesis is that teaching Year 3 & 4 students, who are accurate decoders to comprehend and contextualise unfamiliar words through the use of a 5-step strategy incorporating synonyms, will increase their reading comprehension.

Method

Design

This study uses a treatment and control format. Students will be taught a prescribed procedure to use to identify and define unfamiliar words in an unfamiliar text in order to improve reading comprehension. The study compares two groups of like students, a teaching group and a control group. Due to the limited number of students at the school and the results generated from assessment procedures it was not possible to match the teaching group and control group student-for-student.

Participants

Students selected for the study were Year 3 & 4 children ranging in age from 8 to 10 years old. Students were selected based on calibrated data gained from administering the AIM Composite test (2004 & 2005 test) and the TORCH test as shown in Table 1.

Table 1 Pre-test scores of all students

Student	Age (Years)	Pre-test Data	
Teaching Group		TORCH %	AIM Composite
A	10	71	12/31
B	9	49	8/31
C	8	53	20/26
D	9	49	11/31
E	9	30	14/31
F	8	41	20/26
G	9	60	15/31
H	8	88	16/26
Control Group			
I	9	94	19/31
J	9	49	17/31
K	9	93	14/31
L	9	30	17/31
M	9	65	13/26

As part of a study with Melbourne University (Prof. Patrick Griffin) and the Catholic Education Office of Victoria, and the testing protocol of the school these students were assessed at the beginning of the year. Upon examination of the data gained from test results (AIM questions were itemised) the classroom teacher was able to identify this particular group of students who would benefit from vocabulary development. This group of students were making slow gains in independent inferential reading comprehension with unfamiliar texts. Without word recognition and vocabulary knowledge development they were unable to complete and contextualise meaning in text. These students were able to accurately decode but due to the lack of range of vocabulary they experienced difficulties in engaging with unfamiliar and more complex texts.

Materials

The assessment materials used were what was in current use in the school at the time. The two principal tests used were the ‘Synonyms Task’ and the TORCH test. The AIM Composite test is only available to a select group of schools involved in a University of Melbourne and Catholic Education Office of Victoria joint research effort called ‘The Literacy Assessment Project.’ The combined and calibrated results of the TORCH and AIM Composite test provide an incredible picture of student achievement and deficit.

Two major texts became the focus for the teaching, a fiction big book for whole group work and a ‘PM+’ chapter book at an instructional level for all participants.

Procedure

In pre-testing for this study the TORCH (Test of Reading Comprehension) was used. The structure of the test is not unlike a cloze passage however two key features distinguish it from this format and therefore make it extremely useful a tool for diagnosis of specific reading comprehension deficits. "First, it enables readers to produce their own reconstruction of the author's intended meaning, and, second, it acts as a probe causing them to consider particular details from the text. This gives them the opportunity to demonstrate the depth and breadth of meaning they are able to glean from the text." (TORCH, Mossenson, Hill & Masters 1987, p.2)

Students then went on to complete the 'Synonyms Task' (Munro, 2007). Students were read 29 target words for which they were given time to write as many synonyms as possible for each. Responses were scored according to their words matching the target words semantically and/or grammatically. Other data collected and taken into consideration pre-intervention was the BURT word test and the AIM Composite score.

The teaching procedure was loosely based on John Munro's (2007) Comprehension-Paraphrasing teaching strategy. Using the same structure of this strategy and combining it with the strategy for teaching synonyms a clear procedure was created. The teaching sessions were conducted during 'Reading Rotation Task Time' where for this study students in the class were grouped according to test results and ability. The teaching group received 12 sessions of approximately 40 minutes. Students were taught between 3 and 4 times a week.

The initial session set up the procedure for subsequent sessions:

- Introduction of the strategy
- Teacher modelling
- Review of the action
- Student reflection

After the initial session where students were introduced to the procedure for the first time each subsequent session required students to revisit and restate the procedure taught. Five clear steps were described to the students and also presented visually in the outline of a hand. Each finger became a prompt for each step of the procedure:

“This is what I do when I come to an unknown word.”

- Say the word aloud and correctly
- How is it like words I know?
- Read on and read back to establish context
- Establish meaning
- Suggest synonyms

Students were introduced to a text and worked as a whole group with the teacher modelling the procedure. After several sessions students were encouraged to work from the group text in pairs and then eventually individually. ‘Skinny’ novels were introduced and students were encouraged to make their own selection. They were given post-it-notes to record the unfamiliar words and structures were put in place where they had opportunity to feed back to a partner or the whole group.

Students in the control group participated in the regular classroom program and the other Reading Rotation Tasks. Following the block of targeted intervention, the teaching group was reassessed using TORCH, Burt and the Synonyms test.

Results

The results will be explored in two parts. Firstly, the performance of the teaching group as a whole will be looked at and then each individual participant, both pre and post test results of the key tests. It is difficult to compare the teaching and control group to some degree due to the small number of students in the control group. This was unavoidable due to the finite number of students available for the study. However, it is interesting to note that collectively the teaching group's average results in the synonyms pre-test was higher than the control group's results in the same test yet their TORCH percentile average was lower. (Figure 1)

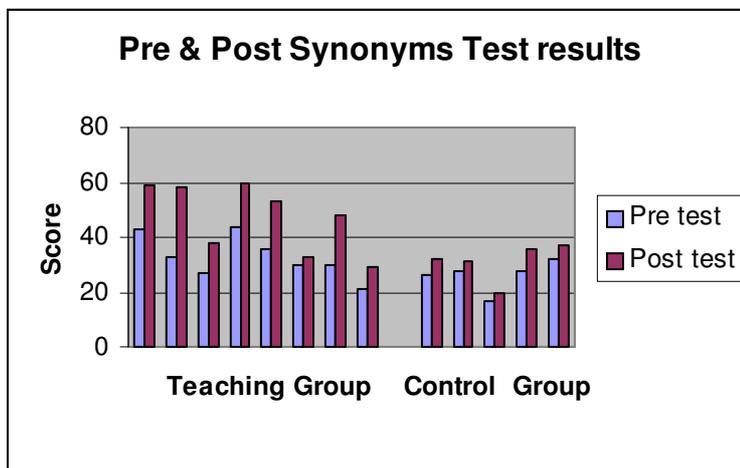


Figure 1 Pre & Post Synonyms Test results

The teaching group was able to generate synonyms in both pre and post test situations whereas some students in the control group were writing descriptive phrases (possible definitions) and/or rhyming words for each synonym. Post-test results indicate some improvement for the control group that is what would be expected over that period of time. However, the teaching group improved their overall average score from pre to post test by 14.25. (Figure 2)

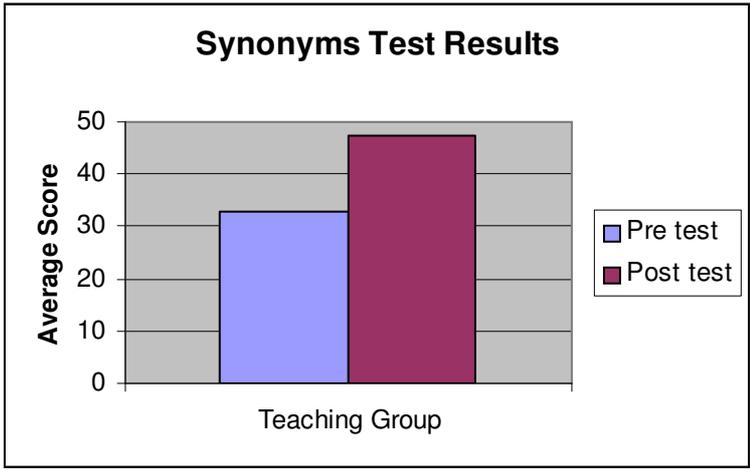


Figure 2 Synonyms Test Averages

Adding to this the initial starting point for the control group results regarding the TORCH test were significantly higher than the teaching group yet at the end of the intervention the teaching group had made noticeable gains stretching their average result by 26.875 in the percentile rankings. (Figures 3 & 4)

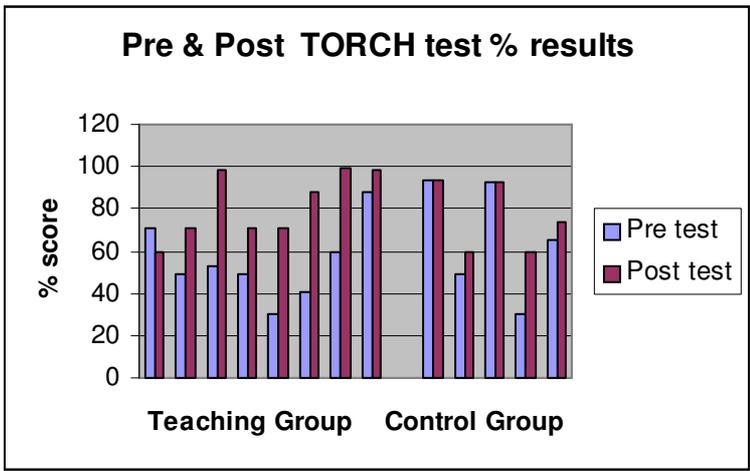


Figure 3 Pre & Post test TORCH %

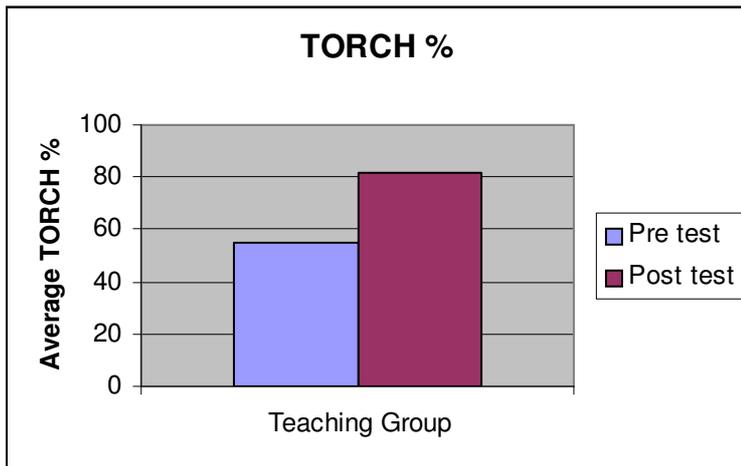


Figure 4 Average TORCH % Teaching Group

Overall, it can be seen that the teaching group started off slightly ahead in the synonyms pre-test but significantly lower in the TORCH in comparison to the control group. The BURT word test suggest that the teaching group whilst reasonably competent with generating synonyms; having a reasonable word bank, did not easily translate this into accomplished reading comprehension. Whereas the control group started out strongly in the TORCH test and BURT word test but made little progress over the time without intervention.

Student A made significant progress in the synonyms pre and post-tests. However the TORCH results went backwards.

Student A was an active participant in the process from the beginning. He was keen to do well in both the pre and post synonyms test and often requested more time for recording responses. At one point he questioned why the target words were not put into sentences so that he could use clues from the sentence to 'decode' the synonym. Whilst he made improvements with his responses in the synonym tests he regressed in the TORCH test. However, there was a marked increase in his responses on the BURT word test.

Student B showed marked improvement in the generating of synonyms with a score increase of 25. His TORCH score also increased. During the intervention this student was a keen participant eager to share and make suggestions for synonyms. He was confident and not concerned about making errors. As the sessions progressed he relied less and less on listing unfamiliar words and was able to self-regulate and sustain the strategy without any aids. He used good, well-rehearsed reading strategies to identify any unfamiliar words. Again, there was a corresponding increase in BURT word responses.

Student C scored quite low in the pre-test for synonyms demonstrating a distinct lack of vocabulary for words such as 'fat', 'old' and 'give'. Her poor responses and lack of responses for some words were cause for concern. However, her post-test results indicated that the intervention strategy had impacted significantly on her ability to generate synonyms for the words she had struggled with previously. Similarly, her TORCH percentile rose from 53% to 98%. Student C consistently applied herself in each teaching session and could often be heard orally rehearsing the strategy as she engaged in text.

Student D experienced similar results to Student C. Her responses to some of the target words in the pre-test were often written as descriptive phrases to avoid having nothing recorded at all. During the post-test the student was able to generate more synonyms, single words although they did not match the target word grammatically. This student does have issues with maintaining tense and verb agreement in her writing and in some aspects of oral language. Her TORCH results improved but little can be said connecting these results with BURT word data.

Student E made noticeable gains from pre to post synonyms tests. He was able to generate many more words for synonyms he wrote descriptive phrases for in the pre-test. Words such as 'cage' and 'mad', which were problematic for this student in the pre-test became

accessible in the post-test. He increased his score by 17. He made little improvement in the TORCH test, which might suggest an issue with transferring a skill to a number of connected contexts, could be challenging for him. However, his BURT word responses are significant enough to comment on. With an increase in score by 15 it seems there is a connection between generating and applying synonyms and decoding and recognition of vocabulary.

Student F, a student with a non-ESL background (unlike the rest of the teaching group), made little progress in the synonyms test. However, her TORCH score increased although whether it was connected with the intervention it is difficult to say. During the teaching sessions this students experienced difficulties generating synonyms for some of the easier texts worked with. When asked to suggest synonyms for 'young' as in 'young man' she suggested 'little boy', totally disregarding the 'man' part of the phrase. When further prompted and questioned she struggled to come up with a word. Some students suggested 'teenager' to which another student provided 'adolescent' commenting on the word and its place in the synonyms test. Student F often struggled to make the connection and generate appropriate synonyms. She tended to move through tasks rapidly and had to be reminded often to revisit and restate the 5-step strategy.

Student G made significant gains from pre to post synonym tests. This correlated with a comment-worthy increase in TORCH percentile results. This student also experienced great gains in the BURT word test as well. Of all the students in the teaching group she was the one who made the greatest gains on average. She applied herself well to the tasks during each teaching session and it was also noted that she was using the strategy outside the intervention group tasks.

Student H made small to minor gains across the board. Similarly to Student F she experienced some difficulties with generating synonyms for some words. In the pre-test for synonyms this student struggled

with generating synonyms for many words but significantly adjectives. Her scores for nouns were not that much higher but her inability to record synonyms for high frequency, common adjectives was concerning. In the post-test for synonyms she was able to make slight increases across the board but failed to make any noticeable progress. Whilst she worked with the 5-step strategy with familiar texts, she experienced difficulties with texts at an instructional level. Her TORCH score was already at an acceptable level so to expect a sharp increase would be unrealistic.

Discussion

Upon reflection it would seem that there is support for the hypothesis that teaching Year 3 & 4 students, who are accurate decoders to comprehend and contextualise unfamiliar words through the use of a 5-step strategy incorporating synonyms, will increase their reading comprehension. All students in the teaching group improved in their ability to generate synonyms to varying degrees. One student made quite limited progress although this was not reflected in their TORCH scores. Interestingly enough this may be the kind of behaviours one might expect to see in a student with an ESL background. However, this student was the only student in the teaching group to not come from an ESL background. She does however come from a low-income household with a 'disabled' parent as principal caregiver. Generally, children from low-income households have much more limited language-enhancing experiences than do children who come from more economically advantaged households. This seems to be a case in point albeit one student in a relatively small sample.

In comparison to the control group it can be seen that the students who didn't receive the intervention made little progress over time. Results were insignificant for the Synonyms test and the TORCH test. BURT word scores barely moved. It can therefore be said that the results support the assertion made by Anderson & Freebody, 1981; and Daneman, 1991 that, "students who struggle to understand words

encountered in a text have more difficulty constructing the overall meaning of a text than students with well-developed vocabularies.” It is important to note the variables influencing the outcomes as stated. A significant variable is the classroom environment and teacher practice. The students in the teaching group participate in a classroom environment where words are displayed according to topic, concept, in descriptive phrases, spelling lists and other print generated by the students themselves. The teacher’s strength lies in her ability to not only generate rich language in the classroom but to dissect it to enable the student to access it and use it. Vocabulary development is taught explicitly with specific goals in mind as well as incidentally. This does not mean to say the students in the control group were under-exposed to rich vocabulary but the significance of the teaching group teacher needs to be acknowledged.

A number of issues arose for both the student and the teacher during the intervention process. Firstly, the importance of saying the unfamiliar word aloud. This simple step cannot be under estimated. Students need to hear the stress/de-stress that needs to be applied to the words in question. Incidentally, and importantly, the teacher of this class sets a homework task each night for all students to read aloud to themselves for 20 minutes. When students can hear themselves and the mistakes they make they are then empowered to correct themselves. Secondly, students made the comparison of generating synonyms in context as opposed to in isolation as in the Synonyms Test that took place. They felt they were better able to generate synonyms when they were aware of the context and could therefore use text clues to establish the meaning of the unfamiliar word. Thirdly, the visual prompt of a hand and the five fingers, each with one step of the strategy printed on it served as a reminder of what to do at each step.

Some factors to consider if this strategy was to be employed by another teacher would be first and foremost careful text selection.

Selecting a text at the beginning of the intervention where all students have a chance to read with success is vital. It is not until later into the intervention when a text at an instructional level may be selected and a scenario not unlike a 'Guided Reading' process set up. Another factor is the on going monitoring of student progress. Whilst these lessons were digitally recorded for the purposes of this study it would be prudent to come up with a checklist for monitoring student progress throughout the intervention. A scale for measuring and recording the number of synonyms generated during a session could be set up and data plotted over time to track progress.

What was successful and of interest to the students were the use of simple aids like the post-it-notes. Students were actively engaged in recording unfamiliar words but to the detriment of their reading.

Introduce the techniques of skimming and scanning was important to the process and this would lend itself well to the reading of non-fiction texts especially when a students was looking for specific information and 'weeding out' superfluous information. By the end of the intervention some students had discarded the post-it-notes and were attempting to employ the strategy without any props. Whilst the situation may seem to be ideal the author thinks that this was slightly premature and perhaps the list-making task should remain as part of the strategy for some students longer than others.

Implications

Vocabulary needs to be explicitly taught. Certain groups of students identified through specific tests need to be taught specific strategies for vocabulary development. Students who most need to expand their vocabularies are generally slow readers, reluctant readers and/or sentence level readers. They may also be students (as are the students of this study) who struggle to make connections while reading due to their low vocabulary. Therefore, explicit teaching of learning how to learn words is needed. Relying on the use of a dictionary when reading is problematical in that dictionary definitions fail to establish the specific context the student is reading about. Encountering words in

meaningful, engaging and realistic contexts provides students with the opportunity to integrate unfamiliar words with their prior knowledge and establish a context for these words. Traditionally, teachers have taught vocabulary through the use of the dictionary. This study suggests that the dictionary in some instances is superfluous and that students can 'solve' unfamiliar words in context using their meaning making motor. Whilst the strategy was only applied to fiction texts it could easily be used with any other genre. Non-fiction texts can be difficult within themselves when students are asked to make sense of a text full of subject-specific language. However, the very structure of the strategy enables students to draw upon prior knowledge, use established reading strategies and make connections. In teaching this strategy students become empowered learners.

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Appendix 1

Introductory session

Text: Enora and the Crane

Introduce the strategy:

I want to show you something that you can do when you encounter a new or difficult word. You are going to learn what to do when you encounter such a word. This will help you to understand the word and make meaning of the whole text. (At this point show “Hand” chart of step-by-step strategies.)

- Say the word aloud and correctly
- How is it like words I know?
- Read on and read back to establish context
- Establish meaning
- Suggest synonyms

Teacher modelling:

Teacher models the strategy with the first sentence. Students are cued to the familiar word with which the strategy will be used.

Follow the process:

- *Say the word aloud and correctly – “young”*
- *How is it like words I know? – youth, youngster, younger*
- *Read on to establish context.*
- *Establish meaning – he was a boy, not yet a man.*
- *Suggest synonyms – teenager.*

Review the action:

What did we do? We read the target word aloud and correctly and considered if it sounded or looked like any words we already know. We read on to gather clues as to its meaning and were able to work out what it meant. We brainstormed synonyms. This 5-step strategy helped us to understand what the text said.

Do you have any questions?

Student Reflection:

Let's try this strategy with another sentence and a word we already know.

Students read a sentence with the teacher and collectively selected a word to apply the process to. They articulated each step in the process as they did, referring to the visual prompt.

Sessions 2 & 3

Activity	Tasks
Introduction <ul style="list-style-type: none">• Process review• Text orientation	<ul style="list-style-type: none">• Review the process shared in the Introductory Session.• Introduce the focus text – ‘Persephone’.
Teacher Modelling <ul style="list-style-type: none">• Text Reading (Shared Reading strategy)• Process review	<ul style="list-style-type: none">• Read the first paragraph and model the procedure with some of the key words.• Reiterate the procedure step-by-step.
Review the Action <ul style="list-style-type: none">• Whole group text reading	<ul style="list-style-type: none">• Students read the next paragraph and work through the process with words indicated by the teacher.• Students state aloud each step of the procedure as they ‘attack’ each word.
Student Reflection	<ul style="list-style-type: none">• Restate the procedure.• Reflect on how they are building up the meaning of the whole text by defining the smaller parts.

Sessions 4, 5 & 6

Activity	Tasks
Introduction <ul style="list-style-type: none">• Process review• Text orientation	<ul style="list-style-type: none">• Review the process shared in the Introductory Session.• Introduce the focus text – ‘Splashdown’.
Teacher Modelling <ul style="list-style-type: none">• Process review	<ul style="list-style-type: none">• Read text aloud to self (as if reading silently).• Restate each step of the procedure as ‘unfamiliar’ words are encountered.
Review the Action <ul style="list-style-type: none">• Small group and paired text reading	<ul style="list-style-type: none">• Students work in groups of 3 to define and contextualise the unfamiliar words using their own copy of the text.• In Sessions 5 & 6 students work in pairs skimming and scanning the next chapter for unfamiliar words. They record these words on post-it-notes before commencing reading.
Student Reflection	<ul style="list-style-type: none">• Students feed back to the whole group stating ‘what they did’ and ‘what they know now’ about the text.

Sessions 7, 8 & 9

Activity	Tasks
Introduction <ul style="list-style-type: none"> Process review 	<ul style="list-style-type: none"> Review the process shared in the Introductory Session and some of the statements made by students regarding their actions in the previous sessions.
Teacher Modelling <ul style="list-style-type: none"> Text reading – skim/scan 	<ul style="list-style-type: none"> Skim/scan the text before reading thoroughly. Record unfamiliar words on post-it-notes. Read text aloud to self (as if reading silently). Restate each step of the procedure as ‘unfamiliar’ words are encountered.
Review the Action <ul style="list-style-type: none"> Individual 	<ul style="list-style-type: none"> Students work individually to define and contextualise the unfamiliar words using their own copy of the text. Teacher ‘conferences’ with each student individually during the session.
Student Reflection	<ul style="list-style-type: none"> Students feed back to the whole group stating ‘what they did’ and ‘what they know now’ about the text.

Sessions 10, 11 & 12

Activity	Tasks
Introduction <ul style="list-style-type: none"> Process review 	<ul style="list-style-type: none"> Review the process shared in the Introductory Session and some of the statements made by students regarding their actions in the previous sessions.
Teacher Modelling <ul style="list-style-type: none"> Text reading – skim/scan 	<ul style="list-style-type: none"> Skim/scan the text before reading thoroughly. Mentally note unfamiliar words. Read text aloud to self (as if reading silently). Restate each step of the procedure as ‘unfamiliar’ words are encountered.
Review the Action <ul style="list-style-type: none"> Individual 	<ul style="list-style-type: none"> Students work individually to define and contextualise the unfamiliar words using a text of their own choice at an instructional level. Teacher ‘conferences’ with each student individually during the session.
Student Reflection	<ul style="list-style-type: none"> Students feed back to the whole group stating ‘what they did’ and ‘what they know now’ about the text.