

Effective vocabulary instruction



School resources

Vocabulary knowledge is fundamental to reading comprehension; one cannot understand text without knowing what most of the words mean. A wealth of research has demonstrated the strength of the relationship between vocabulary and comprehension. The proportion of difficult words in a text is the single most powerful predictor of text difficulty, and a reader's general vocabulary knowledge is the single best predictor of how well that reader can understand text.

Nagy, 1988¹

The relationship between vocabulary knowledge and reading comprehension is underscored in the [Simple View of Reading](#), which describes reading comprehension as a product of decoding skill and language comprehension². This relationship becomes obvious from the middle primary years, by which time most students have well-developed decoding skills and can read more words than they understand. Vocabulary knowledge is a strong predictor of reading comprehension by Year 5, and by Year 8 it is the main predictor of success³. Vocabulary knowledge is also important in the first years at school as oral language comprehension has been shown to support accurate word recognition. Researchers argue that intervention programmes for students at risk of reading failure should focus on building their vocabulary knowledge alongside their decoding skills⁴. In addition, the contribution of vocabulary to 'Matthew Effects' - whereby the gap between high and low achieving students widens - is considerable. This is because students require a certain level of knowledge in order to infer new word meanings and continue to progress. For example, to uncover the meaning of the word 'fumerole' from the sentence 'a fumerole discharges water vapour caused by a hydrothermal system', students would first need to know the meanings of 'discharges', 'vapour', and 'hydrothermal'⁵.

Given the significance of vocabulary knowledge to reading, large disparities in vocabulary size between high and low achieving students are cause for concern. It has been estimated that high achieving students in the first years of school may know twice as many words as their low achieving counterparts⁶, but it is encouraging that, given appropriate instruction, children in all groups may learn new words at the same rate. Research suggests that, on average, children with a low vocabulary need to learn an extra 600 root meanings per year, which is an ambitious target but one that is possible to achieve if support starts early and continues throughout the primary years⁷. Instruction should occur every day, and should include opportunities for incidental learning of vocabulary through immersion in mature speech and linguistically rich texts, as well as planned and explicit teaching of target words and word families⁸. Whole class teaching has been shown to be just as effective as small group and one-on-one interventions, and short sessions (of 20 minutes or less) can be just as effective as longer ones. Significant progress can be made over a limited number of sessions (18 or less), especially when programmes utilise targeted assessments and specific learning objectives⁹.

How many words must be learnt, in order for students to achieve their potential at school? Analyses of the number of words families and word meanings in printed school materials, and the average vocabulary size of school leavers, suggest that word learning occurs at a rate of 3,000 words per school year, although researchers also argue that this should be regarded as a baseline rather than a final target¹⁰. Current research indicates that this growth happens largely as a result of students' background experiences and learning dispositions, and not from school instruction¹¹.

Vocabulary knowledge is the best predictor of reading comprehension. It is therefore key to progress in literacy, and in all other curriculum areas. While teachers often remark on the pressures of timetabling in an overcrowded curriculum, programmes that do not provide high quality vocabulary instruction will hold disadvantaged children back. Vocabulary instruction should be prioritised in all schools: it is time to make this so. In working to implement high quality programmes, teachers may turn to the numerous empirical studies undertaken over the past few decades. This body of research is summarised in what follows, and is accompanied by recommendations for teachers, covering key aspects including:

- incidental learning and explicit instruction
- selecting words to teach
- teaching strategies
- assessment
- differentiated instruction for at-risk students and English Language Learners.

Incidental learning and explicit instruction

A great deal of word learning occurs incidentally, as students are exposed to vocabulary orally and in the context of reading¹². Teachers can strengthen this incidental learning in two key ways. Firstly, they can model sophisticated language use, for example, when referring to familiar classroom activities ('assemble on the courts'), student behaviour ('Thomas showed compassion'), and while teaching across the curriculum ('the universe is possibly infinite')¹³. Teachers can also encourage students to do the same, perhaps by asking them to brainstorm common phrases and then recraft these using a thesaurus, or to 'collect' words according to certain categories, such as emotive words, onomatopoeia, or 'smart words'. The words could then be put into labelled jars and drawn out and discussed during transitions between lessons¹⁴.

Secondly, teachers can teach students how to use context cues to uncover word meanings while they read independently. For this, teachers must explicitly teach the process, using modelling (thinking aloud about the word and its meaning) and guided practice. Teachers must also show students the specific types of cues authors use. In general, this may be through direct explanation ('solar energy is energy derived from the sun's rays'), or the use of synonyms, or words and phrases that mean the same ('the pain persisted, keeping him awake throughout the night'). Prompt students to reflect on the author's use of a particular cue, by asking questions such as, 'Can you see how the author uses a synonym cue to help you figure out the word?' Teach students to use these types of cues in their own writing too¹⁵.

Routines may be used for teaching the use of context cues, which are ideal for instruction during group reading lessons. Here is a synthesis of key steps: firstly, teachers and students re-read the sentence and rephrase it using their own words (be sure to stay with the sentence and not go off on a tangent). Secondly, the group establishes what is being said (consider using the sentence starter, 'I think that means...'). Thirdly, the group identifies tricky words and has a go at defining these words and explaining their rationale. Finally, they summarise the discussion and learning that has occurred¹⁶.

While much vocabulary learning will occur incidentally, this is not enough in itself to remediate the difficulties of struggling readers - explicit instruction in word meanings is also essential. This is because existing differences in vocabulary knowledge may be exacerbated when relying on context cues, particularly if students do not have adequate knowledge of surrounding vocabulary to infer the meaning of a keyword. In addition, context cues can be misleading or insufficient¹⁷. Less able readers may focus too narrowly on the context and not be able to generalise new learning, they may attribute the meaning of

the whole sentence to the target word, or they may move away from the context entirely to develop a new concept to which they think the word might relate¹⁸.

Selecting words to teach during literacy instruction and across the curriculum

Teachers should consider vocabulary challenges at the outset of a unit of work or before reading with children, and identify which words to teach using explicit instruction. There are a number of ways to select these target words. One approach is to select words according to a three-tiered system¹⁹:

- Tier One words are common, everyday words, typically used in oral language
- Tier Two words are more wide-ranging, specific, and used more often in written language than in conversation (for example, 'emerge')
- Tier Three are domain specific (for example, 'enzyme') and may rarely be used

Tier Two words are best suited for vocabulary instruction as they are less likely to be encountered in conversation and will help students to access written text (note that Tier Three words will be encountered and studied as students work across other curriculum areas, provided that lessons are knowledge-rich)²⁰. Select Tier Two words that are useful and important, that express already familiar concepts in a more sophisticated way, and that offer a variety of uses to explore (for example, 'establish' could be used in the context of establishing a business or reputation, or to confirm the truth of something)²¹. Be aware that verbally defined or abstract words (such as 'jealousy') may be more important to teach than those with concrete meanings (such as 'propeller')²².

Teachers should consider certain criteria when selecting words for instruction, asking: Is the word critical to the students' understanding of a text? Will it be used again? Is it needed for discussions and writing? Certain characteristics may make words less urgent for teaching, for example, if students could infer the meaning easily from contexts, or from the word's structure or parts they already know. In addition, it may be worth involving students in the process of word selection by having them complete a knowledge ratings chart to indicate whether they have seen or heard the word before, and whether they can already provide a definition²³. This activity could be used as a repeated pre- and post-assessment task at the beginning and end of a unit of work. Another option is to use a word list such as Averil Coxhead's [Academic Word List](#) which contains 570 root words and 3000 derived meanings²⁴.

Advice varies as to the number of words to work with over the course of a week. Some experts recommend up to ten words a week, introducing between three and five words in a lesson, while others have observed that even pre-schoolers are capable of learning up to twelve word meanings a week²⁵. Some even argue that it is better to teach a greater number of words each week (up to 25) as children typically learn between one third and one half of all meanings taught, whether these are many or few²⁶.

Teaching strategies: Classroom routines for explicit teaching of vocabulary knowledge

What to teach

What does it mean to know a word? Correct pronunciation, the written form, and an understanding of the word's meaning are key priorities for young learners, but other aspects are also important. These include:

- Being able to identify meaningful word parts. This can be addressed using explicit teaching of Greek and Latin roots, present in 60% of multisyllabic words, and a single root can help to uncover the meanings of up to 20 words²⁷. Teaching affixes (prefixes and suffixes) will further support this learning. Begin with the most common roots and affixes (a list is provided as an appendix below;

note that suffixes do not have meanings of their own but determine the grammatical function of words - think of big/biggest).

- Knowing a word's associations and grammatical functions. These are best learnt through immersion in and practice with using rich language, though for English Language Learners, the memorisation of sample sentences can also be helpful²⁸.

Strengthening learning: General principles and teaching ideas

The goal of all vocabulary teaching is for students to be able to use new vocabulary fluently and purposefully in speaking, reading, and writing. This is best achieved through a combination of explicit instruction and opportunities for meaningful practice, both during literacy instruction and across the curriculum²⁹:

- **Ensure that teaching and learning in all curriculum areas is 'knowledge rich'.** Vocabulary knowledge reflects a person's broader knowledge of concepts and meanings. As students build knowledge around certain key topics, they will acquire vocabulary more authentically, and more efficiently, than if teachers focus on teaching the meanings of individual, unrelated words. While teachers have often focused on skills first when teaching reading (whether decoding skills, or comprehension strategies such as summarising a text), a student's background knowledge of a topic (and of course, related vocabulary) is the key factor in determining how well they comprehend a text³⁰.
- **Have students engage with interesting and authentic texts which include the target words.** Occasionally set timed practice activities - such as a 'beat the clock' true or false quiz about target word meanings - to build fluency with word knowledge³¹.
- **Be clear and explicit when discussing word meanings.** Dictionary definitions are helpful for proficient readers but can be problematic for beginners: they can be too precise or too vague, they can include too many pieces of information, or fail to provide for different interpretations of a word. Instead of relying on dictionary definitions, teachers should develop their own 'student-friendly' ones. These should capture the essence of the word as it is most commonly used, and should be articulated in everyday language³².
- **Repetition is helpful.** Learning will be strengthened when students encounter the same words across a range of contexts and curriculum areas³³. Keep a list of words taught and find ways to revisit them throughout the year. Consider creating a 'word wall' to which the students can refer back. Make the words moveable (with velcro dots) so that students can take them to their tables to support spelling during writing³⁴.
- **Using visual representations of the words may support students' memory of their meanings.** Examples include Bromley's [Three-Dimensional Word Strategy](#), which calls for students to define the word, draw a picture of the concept, use the word in context, and then find an object to represent it³⁵. Another idea is to use online tools such as Google slides or the [padlet](#) online bulletin board. With these, students can display words with links to images or further information³⁶.
- Plan activities which call for deeper processing to help make learning 'stick'. Certain activities encourage deeper processing: for example, recalling a word's definition requires deeper processing than reading one, and producing one's own definition is better still³⁷. Teachers can present a variety of definitions of a word to their students, and then challenge them to come up with their own, using just 3-5 words; or use a 'carousel walk' of words (or pictures relating to the words) by displaying the words in the classroom and having groups rotate around the words and discuss their meanings³⁸.
- Help students to make connections between words, creating synapses from already known words to new ones. Teachers can select three words and have students articulate what is the same about

them, what is different, and a way to remember the individual word meanings. This could be done in writing, using a graphic organiser. Teaching roots and associated word families is another great way to establish connections³⁹.

A routine for explicit teaching of vocabulary using read alouds⁴⁰

For this routine, choose books that include more advanced vocabulary than the students will be reading themselves. Picture books are ideal as they are short enough to read several times, so that new words can be practised and reinforced. Select sophisticated picture books for older students (such as David Hill's 'First to the Top', a biography of Sir Edmund Hillary), or the class novel may be used, so long as this is an extending text, with activities planned to ensure that vocabulary encountered in the opening chapters is revisited as the story progresses. When using a picture book, select target words using the methods described above. Read the text several times, the first time with minimal interruptions, and then over following readings, stop to provide student-friendly explanations of the target words. You could interrupt a whole text about 8-10 times, or once every 75-100 running words. To learn more about this routine, click [here](#).

As the words are first introduced, have students pronounce the words themselves. Over subsequent readings, facilitate activities to encourage deeper processing. For example, ask students to:

- Provide their own examples of situations or sentences which use the words. For example, for 'cautiously', ask, 'what other activities might you do cautiously?'
- Act out the words
- Identify examples and non-examples of the word's meaning. For example, for 'extraordinary', 'which of these events could be described as extraordinary?'
- Finish a sentence which uses the word. For example, for 'jealous', the sentence, 'I was jealous of my cousin when...'
- Identify sentences with the word that do, or do not, make sense
- Identify 'true' or 'false' statements that use the word.

Towards the end of the week, when all of the target words have been worked with a number of times, review them together with activities such as:

- Choosing between the words to match a scenario
- Asking students, 'What is the word that means...?'
- Finding things that are the same about the words. For example, when reading 'First to the Top', the words 'summit', 'crevasse', 'glacier', and 'ridge' all describe features of a mountainous landscape.
- Composing a sentence which uses all the words together.

Differentiation

It is important to implement robust vocabulary instruction from the beginning of school to prevent reading difficulties for at-risk students. Once instruction is underway, some students may require 'booster sessions', using the above strategies, which provide more intense and frequent work with target words than could be achieved in the whole class programme⁴¹.

For English Language Learners, the strategies detailed above could be complemented with the translation of terms into a student's first language, and with the explicit teaching of cognates, or words from two languages that share a root and have a similar meaning (for example, delicious in English and

délicieux in French)⁴². Other innovative methods include Pressley's keyword method, in which students are supported to develop a meaningful association between an English keyword and a word from their first language⁴³, or using generative strategies for story retelling, in which students recall prior knowledge, add personal opinions, paraphrase, and include examples⁴⁴.

Assessment

There are several standardised assessments that teachers can use to assess students' vocabulary knowledge. Oral tests of vocabulary for preliterate students include The Peabody Picture Vocabulary Test⁴⁵ and the Expressive Vocabulary Test⁴⁶. These are standardised and are predictive of later school achievement, though they are difficult for classroom teachers to administer as each takes around 15 minutes per student. A more practical alternative is Biemiller's 'two question' method, which assesses word knowledge using two yes or no questions for each of the target words (for example, for the target word fruits, 'are cherries and peaches fruits?' and 'are carrots and beans fruits?'). Students indicate their responses by circling smileys (or sad faces), allowing teachers to assess around 20 word meanings with a whole class in about 30 minutes. Results correlate with the Peabody Picture Vocabulary Test, so this method may be useful for monitoring student progress over the first years at school⁴⁷.

Many instructional activities can also be used as formative assessments to gather information about students' progress, such as true/false and example/non-example quizzes about words. To assess deeper knowledge, teachers can ask students to develop their own definitions and examples, or to describe what is the same or different for pairs of words⁴⁸. Perhaps the most important measure of a students' fluency with vocabulary knowledge is whether they are able to use these words in their speaking, reading, and writing. Keeping a list of explicitly taught vocabulary may help to focus teacher-observation during authentic literacy tasks.

Appendix: Most common roots and affixes to teach⁴⁹

Prefixes

a-, ab-, abs- (away, from)

anti- (against)

ad- (to, toward, add to)

circu - (around)

co- com-, con-, col (with, together)

contra- (against)

de- (off, away)

di-, dif-, dis- (apart, in different directions, not)

ex- (out)

for - (away/against)

fore (before, ahead)

in- im-, il- (in, on, into, not)

mis (wrongly)

multi- (many)

out (beyond)

poly- (many)

pre- (before)

pro- (forward, ahead)

re- (back, again)

sub- (under, below)

tra-, tran-, trans (across, change)

un- (not)

under- (below)

Common suffixes (and how they mark the grammatical function of a word)

-ed (past tense verb)

-ly, -y (adverb)

-ful (quantity noun adjective)

-less (adjective)

-ness (noun)

-ing (present, continuous verb)

-er (comparative adjective)

-est (superlative adjective)

-hood (noun)

-ish (adjective)

Latin and Greek roots

andr (human)

audi (hear, listen)

chron (time)

cred (believe)

cur, curs, cours (run, go)

dem (people)

dict (say, tell, speak)

duc, duct (lead)

fac, fic, fact, fect (do, make)

geo (earth)
graph, gram (write, draw)
hemi (half)
ject (throw, cast)
mono (one)
mis, mit (send)
mov, mot, mobil (move)
path (disease)
phobia (fear)
pon, pos, posit (put, place)
port (carry)
rupt (burst, break)
scrib, script- (write)
spect (see)
sphere (ball)
tele (far, distant)
terr (earth)
vid, vis (see)

Endnotes

- 1 Nagy, W. E. (1988). Teaching vocabulary to improve reading comprehension. Newark, D.E: International Reading Association, p. 1.
- 2 Hoover, W. A. & Gough, P. B. (1990). The Simple View of Reading. *Reading and Writing*, 2(2), 127-160.
- 3 Biemiller, A. (2012). Teaching vocabulary in the primary grades. In Baumann, J. & Kame'enui, E. (Eds.). *Reading Vocabulary: Research to Practice, Second Edition*. New York: Guilford Press.
- 4 Tunmer, W. E. & Chapman, J. W. (2012). The Simple View of Reading redux: Vocabulary knowledge and the Independent Components hypothesis. *Journal of Learning Disabilities*, 45(5), 453-466.
- 5 Pondiscio, R. (2015). The 57 Most Important Words in Educational Reform [video]; Beck, I. L., McKeown, M.G. & Kucan, L. (2013). *Bringing Words to Life: Robust Vocabulary Instruction*. New York: Guilford Press.
- 6 Biemiller, A. (2012); Nagy, W. E. & Herman, P. A. (1984). *Limitations of Vocabulary Instruction*. [Technical Report]. University of Illinois: Center for the Study of Reading.

- 7 Biemiller, 2012; Marulis, L. M. & Neuman, S. B. (2010). The effects of vocabulary intervention on young children's word learning: A meta-analysis. *Review of Educational Research*, 80(3), 300-335. Note that, according to this analysis, the greatest gains were made by middle and high income students. Subsequently, the researchers assert that these interventions were not, in themselves, enough to 'close the gap'. Vocabulary instruction must therefore be understood as just one aspect of an overall programme to support low SES students.
- 8 Beck et al., 2013; Wilfong, L. G. (2021). *Vocabulary Strategies That Work*. New York: Routledge.
- 9 Marulis & Neuman, 2010.
- 10 Nagy, W., & Anderson, R. (1984). How many words are there in printed school English. *Reading Research Quarterly*, 19, 304-330. <http://dx.doi.org/10.2307/747823>
- 11 Biemiller, A. (2010). Words worth teaching: Closing the vocabulary gap. In E. H. Hiebert, & M. L. Kamil (Eds.), *Teaching and Learning Vocabulary: Bringing Research into Practice* (pp. 223-242). NJ: Lawrence Erlbaum Associates, p. 4.
- 12 Nagy, W., Herman, P., Anderson, R., (1985). Learning words from context. *Reading Research Quarterly*, 20(2).
- 13 Lane, H. B. & Arriaza-Allen, S. (2010). The vocabulary-rich classroom: Modelling sophisticated word use to promote word consciousness and vocabulary growth. *The Reading Teacher*, 63(5), 362-370.
- 14 Wilfong, 2021.
- 15 Wilfong, 2021; Beck, et al., 2013.
- 16 Beck et al., 2013; Ayrey, H. (2014). Personal communication.
- 17 Wilfong, 2021.
- 18 Beck et al., 2013.
- 19 Beck et al., 2013.
- 20 Pondiscio, 2015.
- 21 Beck et al., 2013.
- 22 Biemiller, 2012.
- 23 Wilfong, 2021.
- 24 Biemiller tested students at different levels using Dale and O'Rourke's Living Word Vocabulary. His results suggest that there is a sequence of word learning, with certain words learned earlier and others later, and children with relatively small vocabulary knowing the meanings of the earlier words, while those with larger vocabularies know these early words and others. From this work he developed a list of words for instruction, including 1600 words by the end of Grade 2 (Year 3) and a further 2900 words by the end of Grade 6 (Year 7). These lists are provided in Biemiller's monograph *Words Worth Teaching* (2009). Many of the words on Coxhead's list overlap with Biemiller's.
- 25 Biemiller, A., & Boote, C. (2006). An effective method for building meaning vocabulary in primary grades. *Journal of Educational Psychology*, 98, 44-62. doi:10.1037/0022-0663.98.1.44
- 26 Biemiller, 2012.
- 27 Wilfong, 2021.

- 28 Nation, P. (2019). The different aspects of vocabulary knowledge. In Webb, S. (Ed.). *The Routledge Handbook of Vocabulary Studies*. London: Routledge.
- 29 Nation, 2019.
- 30 Wexler, N. (2020). Building knowledge: what an elementary school curriculum should do. *American Educator*, 18-39.
- 31 Beck et al., 2013.
- 32 Beck et al., 2013.
- 33 Nation, 2019.
- 34 Wilfong, 2021.
- 35 Wilfong, 2021.
- 36 Wilfong, 2021.
- 37 Nation, 2019.
- 38 Wilfong, 2021.
- 39 Wilfong, 2021.
- 40 This routine has been adapted from Beck, McKeown, and Kucan (2013), and Biemiller (2012).
- 41 Beck et al., 2013.
- 42 Nation, 2019.
- 43 Pressley, M., Levin, J., & Delaney, H. (2016). The Mnemonic Keyword Method, *Review of Educational Research*, 52(1), 61-91.
- 44 Joe, A. (1988). What effects do text-based tasks promoting generation have on vocabulary acquisition? *Applied Linguistics*, 19(3), 357-377.
- 45 Dunn, L. M. & Dunn, D. M. (2007). *The Peabody Picture Vocabulary Test*.
- 46 Williams, K. (1997). *Expressive Vocabulary Test*. American Guidance Service.
- 47 Biemiller, 2012.
- 48 Beck et al., 2013.
- 49 Wilfong, 2021; Van Cleave, W. (2019). *Morphology Matters: Building Vocabulary Through Word Parts*. Retrieved from: <https://www.wvced.com/wp-content/uploads/2019/04/Morphology-Matters-4-1-19.pdf>

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