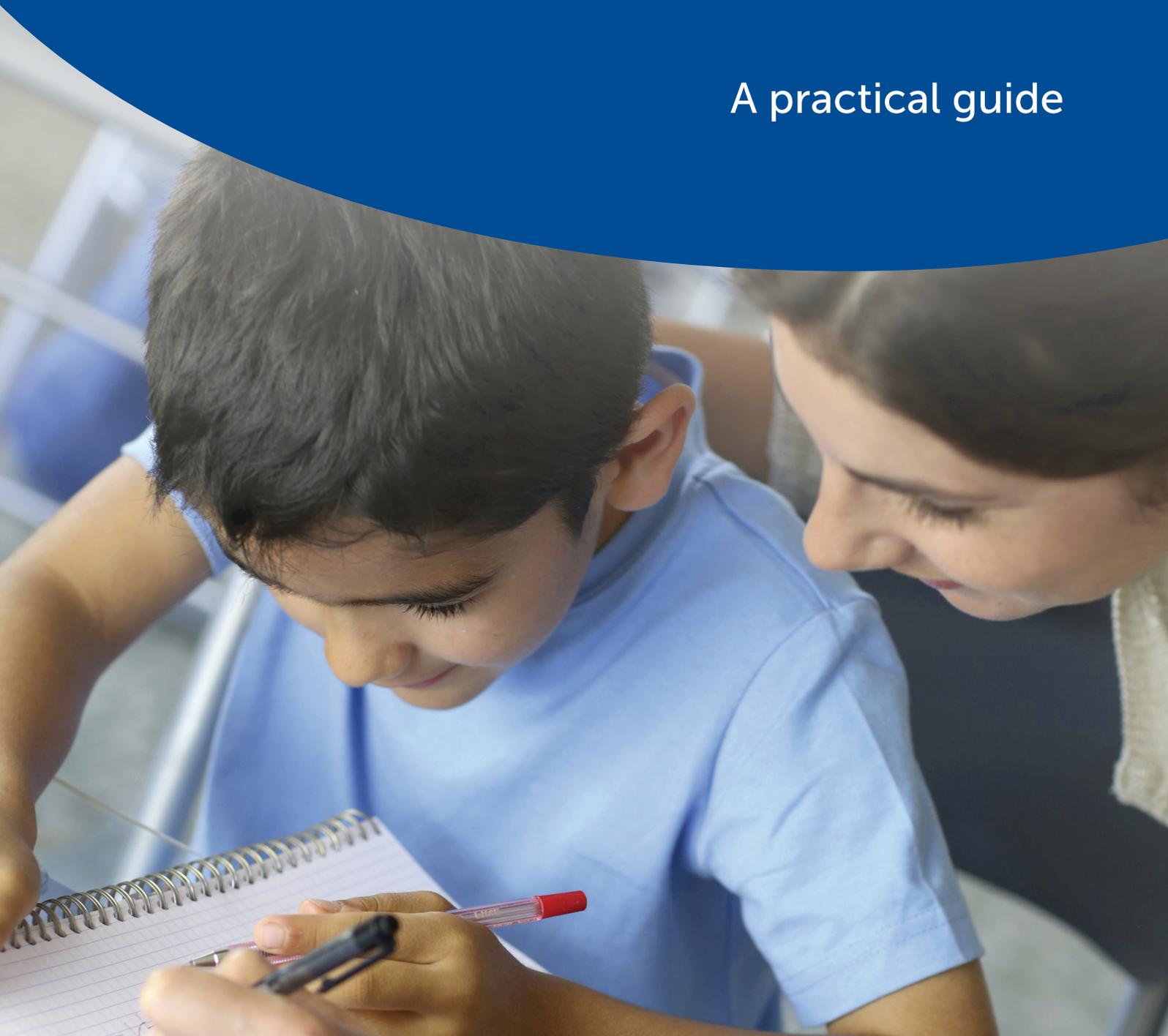


AUSPELD
supporting people with learning disabilities



Understanding Learning Difficulties

A practical guide



This guide was compiled and published
in 2014 by DSF Literacy Services

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Introduction

In each and every classroom throughout Australia there are students with both learning difficulties, and learning disabilities, struggling to achieve at an acceptable level. As a consequence, it is essential that all teachers – no matter which age-group or which subject area they teach – acquire the necessary knowledge and skills to successfully teach and support these students.

It is estimated that the number of students in Australia with learning disabilities is between three and five percent of the total student population. The majority of these students will never be diagnosed with a learning disability; a factor that will potentially disadvantage them, both during their school years and beyond.

While the diagnosis of a learning disability requires specialist knowledge, teachers at all levels of education can play a vital role in both identifying students at risk, and assisting all students to achieve improved academic outcomes through the introduction of effective and evidence-based strategies.

This booklet, in conjunction with the enclosed CD, is designed to provide primary and secondary school teachers throughout Australia with a greater awareness and understanding of the significant

• impact learning
• disabilities can have
• on students, and
• to outline the most
• effective remediation
• and accommodation
• strategies available
• to them as classroom
• teachers.



... teachers at all levels of education can play a vital role in identifying students at risk....

The difference between a learning difficulty and a learning disability

The terms used to describe the unexpected and persistent learning problems experienced by some students, in specific academic domains, vary both nationally and internationally. In the United States students are identified with 'Learning Disabilities' or 'Learning Disorders', whereas in the United Kingdom there is a preference for the term 'Learning Difficulty'. Some Australian States and Territories encourage the use of the term 'Learning Difficulties' for all students struggling to develop skills in literacy and/or numeracy, while others separate this quite large body of students into a number of categories.

For the purposes of this Guide, 'Learning Disabilities' will be viewed as a sub-set of the larger group of students generally referred to as experiencing learning difficulties. This is in line with the Australian National Health and Medical Research Council, the Australian Disability Discrimination Act (1992) and the Australian Disability Standards for Education (2005). For diagnostic purposes, the term 'Specific Learning Disorder' is generally adopted.

Students with **learning difficulties** underachieve academically for a wide range of reasons, including factors such as: sensory impairment (weaknesses in vision or hearing); severe behavioural, psychological or emotional issues; English as a second language or dialect (ESL or ESD); high absenteeism; ineffective instruction; or, inadequate curricula. These students have the potential to achieve at age-appropriate levels once provided with programs that incorporate appropriate support and evidence-based instruction.

Students with **learning disabilities** have difficulties in specific areas of academic achievement as a result of an underlying neurodevelopmental disorder, the origin of which includes an interaction of genetic, epigenetic and environmental factors. One of the defining features of a specific learning disability is that the difficulty continues to exist, despite appropriate instruction and intervention.

Students with a learning disability:

- have difficulties which are inherent to the child and are lifelong
- do not perceive or process information as efficiently or accurately as students without a learning disability
- often to have a family member with learning difficulties
- do not respond to intervention in the expected way.

Percentage of Australian Students with a Learning Difficulty or Disability



Left unidentified, without appropriate intervention, a learning disability puts students at significant disadvantage, with little likelihood of achieving at levels close to their academic potential.

Early identification is the key to success in the classroom, followed by intervention – including both remediation and accommodation – that is supported by research evidence.

What do we know about types of learning disabilities?

There are a number of specific learning disabilities (specific learning disorders) that have the potential to impact on a student's school performance.

- **Dyslexia** – A specific learning disability in Reading
- **Dysgraphia** – A specific learning disability in Written Expression
- **Dyscalculia** – A specific learning disability in Mathematics

Dyslexia

Dyslexia is the most common form of learning disability, accounting for 80% of all students identified. Problems with reading, and related difficulties in comprehension, spelling and writing are common for these students. Many people with dyslexia also experience difficulties with working memory, attention and organisational skills.

Dyslexia can be defined as:

... a specific learning disability that is neurological in origin. It is characterised by difficulties with accurate and / or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.*



What you might see in the classroom

Lower Primary School	Upper Primary School	Secondary School
<ul style="list-style-type: none"> ■ Difficulties with oral rhyming, syllabification, blending and segmenting of sounds in words ■ Delayed speech and language development ■ Limited spoken vocabulary ■ Poor understanding of letter-sound correspondences ■ Difficulty in the acquisition of letter knowledge ■ Slow and inaccurate word recognition ■ Inability to read nonsense words ■ Poor spelling ■ Difficulty understanding reading material ■ Difficulties with tasks requiring reasonable working memory capacity - such as following instructions or remembering sequential information 	<ul style="list-style-type: none"> ■ Reduced ability to isolate and manipulate individual sounds in words ■ Difficulties holding verbal information (e.g. instructions) in working memory ■ Slow to complete literacy-related tasks ■ Reading is slow and dysfluent ■ Visually similar words are often confused when reading ■ Trouble decoding unfamiliar words ■ Poor reading comprehension ■ Limited retention of orthographic knowledge including spelling patterns ■ Numerous spelling errors (phonetic or non-phonetic) ■ Significant discrepancy between verbal ability and written skills ■ A lack of interest in or avoidance of reading and writing tasks ■ Ongoing difficulties in working memory 	<ul style="list-style-type: none"> ■ Poor reading fluency ■ Reduced reading comprehension (may need to re-read material many times to comprehend) ■ Poor spelling, including lack of knowledge of patterns in words and morphological knowledge (affixes and base words) ■ Poor writing fluency ■ Difficulties writing in a structured manner (i.e. poor sentence and paragraph construction, unable to structure essays) ■ Slow speed of writing ■ Disorganisation and difficulties with planning ■ Limited working memory ■ Word finding difficulties ■ A lack of interest in or avoidance of reading and writing tasks ■ Working memory difficulties may become more pronounced as the demands of schooling increase

Look for students who have problems processing speech sounds in words.

“Spelling was, and remains, a significant area of difficulty for me. I had to spend a great deal of time learning and relearning spelling lists, and even then I would often make mistakes. I also struggled to read aloud. I would stumble over my words and make a lot of mistakes. This was an area of great embarrassment for me and I hated being asked to read in front of my classmates. I also found it difficult to read complicated text silently; I would find it useful to say it out loud, to myself, as I read – something which in certain circumstances could also be quite embarrassing.”

*This definition is the preferred definition of the International Dyslexia Association (IDA) and the National Institute of Child Health and Human Development (NICHD)

'Mike' Aged 29 years.

Dysgraphia

Dysgraphia is a specific learning disability that often remains undiagnosed. It is a persistent difficulty with written expression, handwriting and/or spelling that may occur in isolation but, more often, occurs in conjunction with dyslexia.

Dysgraphia can be defined as:

... a specific learning disability that is neurological in origin. It is characterised by difficulties with accurate and / or fluent written expression and by poor spelling and handwriting skills. These ongoing delays in writing are often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.

It is commonly recognised that Dysgraphia can be separated into two subtypes: Motor-based Dysgraphia and Language-based Dysgraphia. Both subtypes of dysgraphia are likely to have a detrimental impact on the writing process and both will result in the student facing a number of writing challenges.

Motor-based dysgraphia can be viewed as difficulties with the mechanical aspects of writing. Often students with this type of dysgraphia are able to structure and sequence their ideas effectively, but struggle with the manual aspects of handwriting. This results in writing becoming a tiring, laborious and sometimes painful process for the student.

Language-based dysgraphia is more consistent with delays in processing and sequencing ideas in writing. The content of the writing is well below the level expected, despite students being able to present their ideas clearly and concisely orally. Often there is no difficulty in the handwriting aspects of writing in a student with language-based dysgraphia.

When handwriting, spelling and the composition of sentences and texts are explicitly taught, students have a greater chance of achieving an acceptable standard of writing. Automaticity in handwriting, and a solid understanding of English orthography, allow students to reduce cognitive overload and 'free up' their working memory to concentrate on high order writing skills, such as the planning of both content and structure.

While explicit instruction can benefit students with dysgraphia, weaknesses in writing fluency are likely to endure. Students with dysgraphia often have to work much harder and longer to produce written work to the same standard as an individual with typically developing writing skills.



What you might see in the classroom.

Lower Primary School	Upper Primary School	Secondary School
<ul style="list-style-type: none"> ■ Reading appears adequate but difficulties with writing are apparent ■ Avoids writing tasks ■ Letters are poorly formed ■ Handwriting shows poor spacing and sizing of letters and words ■ Letter forms are frequently confused ■ Poor spelling ■ Difficulties learning basic sentence structure and grammar 	<ul style="list-style-type: none"> ■ Writing is slow and dysfluent ■ Difficulties are more apparent as demands on writing ability increase through middle and upper primary school ■ Process of writing is effortful and tiring ■ Handwriting is immature ■ Poor orthographic knowledge and lack of automaticity in spelling ■ Difficulty choosing correct spelling alternatives ■ Sentence and paragraph structure is poor ■ Significant discrepancy between verbal ability and written skills 	<ul style="list-style-type: none"> ■ Legibility of handwriting is poor ■ Difficulties writing at the same speed as their peers ■ Great difficulties noted in transferring thoughts into written words ■ Apparent gap between oral and written language skills ■ Knowledge and application of essay structure is underdeveloped ■ Lack of detail in written expression ■ Written output is limited with far less work being produced in allocated writing time ■ Writing and spelling skills do not appear automatic

“Sometimes I can have the most amazing ideas for a story - or have the answer to a question in my head - but when it comes to writing it down – the idea or answer somehow turns into complete chaos!”

Thomas, Age 11 years



Dyscalculia

Dyscalculia is an innate difficulty in learning or comprehending mathematics. Students with Dyscalculia have trouble understanding numbers, learning how to manipulate numbers, learning mathematical facts, and a number of other related difficulties.

Dyscalculia can be defined as:

.. a condition that affects the ability to acquire arithmetical skills. Dyscalculic learners may have difficulty understanding simple number concepts, lack an intuitive grasp of numbers, and have problems learning number facts and procedures. Even if they produce a correct answer or use a correct method, they may do so mechanically and without confidence.

The severity of mathematical impairment differs depending on the individual. Although it can be argued that many of the defining features of Dyscalculia can also be seen in students who do poorly in mathematics, it is the degree of these difficulties and the resistance to remedial intervention that set students with Dyscalculia apart from others with learning difficulties.

What you might see in the classroom.

Lower Primary School	Upper Primary School	Secondary School
<ul style="list-style-type: none"> ■ Difficulties organising objects and sets of items in a logical way 	<ul style="list-style-type: none"> ■ Counting skills mastered but persistent use of ineffective strategies for calculation 	<ul style="list-style-type: none"> ■ Difficulties learning maths concepts beyond basic number facts
<ul style="list-style-type: none"> ■ Difficulties recognising printed numbers 	<ul style="list-style-type: none"> ■ Difficulty telling the time and recalling times tables 	<ul style="list-style-type: none"> ■ Difficulties with mental maths
<ul style="list-style-type: none"> ■ Poor counting skills and knowledge of counting strategies 	<ul style="list-style-type: none"> ■ Delays in the retrieval of overlearned maths facts 	<ul style="list-style-type: none"> ■ Difficulties finding more than one way to solve a maths problem
<ul style="list-style-type: none"> ■ Difficulties using counting strategies (counting in 2's, 5's etc) 	<ul style="list-style-type: none"> ■ Difficulties with inattention to numerical operator (e.g. $+$, $-$, \times, \div) 	<ul style="list-style-type: none"> ■ Delays in learning and recognising maths vocabulary
<ul style="list-style-type: none"> ■ Difficulties with mastering number knowledge (recognising how many items make a set without counting) 	<ul style="list-style-type: none"> ■ Delays in applying concepts of borrowing and carrying (place value) 	<ul style="list-style-type: none"> ■ Difficulties in reading and interpreting graphs, charts and maps
<ul style="list-style-type: none"> ■ Delays in using effective counting strategies for addition (counting all instead of counting on) 	<ul style="list-style-type: none"> ■ Difficulties with measurement and understanding spatial relationships 	<ul style="list-style-type: none"> ■ Poor perception of the passage of time and difficulties sticking to a schedule
<ul style="list-style-type: none"> ■ Difficulties decomposing numbers 	<ul style="list-style-type: none"> ■ Difficulties with multi-step calculation procedures 	<ul style="list-style-type: none"> ■ Poor budgeting skills
<ul style="list-style-type: none"> ■ Difficulties remembering arithmetic facts 	<ul style="list-style-type: none"> ■ Increased anxiety and negative attitude towards maths 	<ul style="list-style-type: none"> ■ Delays in spatial directions

Processing weaknesses are common in students with learning disabilities

Students with learning disabilities generally have difficulties processing information accurately and automatically, and many students have a weakness in working memory. Students who have Dyslexia or Dysgraphia also tend to have difficulties processing speech (phonological processing) and may also struggle to process and recall the letter patterns used in written language (orthographic processing).

What is working memory?

Working Memory is the ability to hold information in mind and manipulate it as necessary for a brief period. It is a person's mental workspace. A student's working memory capacity depends on their age and innate abilities. Lower primary students are only able to hold, manipulate and recall a small number of items or 'chunks' of information (e.g. two or three items) whereas secondary students can deal with more (e.g. four or five items). Working memory capacity increases with age until approximately 16 years, although no matter what the age, there will be some students with larger working memory capacities than others. Working memory is highly correlated with both literacy and numeracy achievement levels and is resistant to change. Students with poor working memory at the beginning of their schooling are likely to have poor working memory as teenagers and adults. There are, however, a number of teaching and learning strategies that successfully support students with poor working memory in the classroom (see 'Accommodations' page 32).

Examples of classroom tasks that place a heavy load on working memory:

- Remembering multi-step instructions
- Performing mental maths sums
- Reading comprehension
- Constructing written expression
- Spelling a long or complex word
- Recalling details from a spoken passage or story.

What is phonological processing?

A key component in the definition of Dyslexia and Dysgraphia is a deficit in the phonological component of language. Phonological processing comprises three areas of functioning:

1. Phonological Awareness
2. Phonological Memory
3. Rapid Automatisised Naming

Students who have a weakness in one or more of these areas are likely to experience literacy-learning difficulties.



Phonological and Phonemic Awareness

Many students with learning disabilities have difficulty attending to the sounds and oral language patterns within words. This ability is called phonological awareness. In the early years of schooling, students may show difficulties in:

- detecting and creating rhyming words
- breaking words into syllables
- identifying the phonemes (individual sounds) at the beginning and end of words
- Isolating, deleting and substituting phonemes within words.

Frequently, older students with dyslexia also demonstrate difficulties in some of these more complex phonological processes (especially in accurate and efficient phoneme identification and manipulation).

The ability to work with syllables, and to blend and segment phonemes in words, is critical to the development of good reading and spelling skills. Students need to learn that the sounds they are making when they speak relate directly to the letters they use when reading and writing. Essentially, we blend to read and we segment to spell.

- **Phoneme blending** requires listening to a sequence of separately spoken sounds and combining them to form a recognisable word, for example, the sounds /sh/ /o/ /p/ form the word shop.
- **Phoneme segmentation** requires breaking a word into its sounds by tapping out or counting the sounds, for example, "How many phonemes in block?" (four: /b/ /l/ /o/ /ck/).

Phonological Memory

The ability to hold on to speech-based information in short-term memory is called phonological memory. We rely heavily on our phonological memory when reading and spelling.

This skill is assessed by asking students to remember strings of numbers or to repeat nonsense words of increasing length and complexity. Students with poor phonological memory are unable to hold as much phonological information in mind as their age-matched peers. When recalling nonsense words, they tend to forget parts of the word and/or confuse the sounds and sequence of sounds in the word.

Students with dyslexia and/or dysgraphia often have weaknesses in phonological memory.

Rapid Automatisised Naming

A skill that is commonly assessed in the identification of both Dyslexia and Dysgraphia is referred to as Rapid Automatisised Naming (RAN). It requires an individual to quickly identify and name a series of common stimuli (e.g. letters, numbers, colours, objects). People with learning disabilities – particularly dysgraphia – often take longer to name these items when compared to their peers.

RAN provides information about an individual's ability to retrieve words quickly and easily from long term memory. Students with a poor RAN score (and, therefore, difficulties with rapid word retrieval) tend to have weaknesses in reading and writing fluency. These difficulties often become apparent later in a student's education.

What is orthographic processing?

Becoming a fluent reader requires both the capacity to utilise sound-based decoding strategies and the ability to accurately recognise familiar letter patterns either as whole words (e.g. 'was') or within words (e.g. night). The ability to rely less heavily on sound-based decoding strategies is very much dependent on the development of orthographic processing.

Orthography refers to the conventional spelling system of any given language and includes rules around letter order and combinations as well as capitalisation, hyphenation and punctuation. Orthographic processing is the ability to understand and recognise these writing conventions as well as recognising when words contain correct and incorrect spellings. Skilled readers are able to instantaneously access many thousands of mental representations of printed word forms or 'legal' English spelling patterns. These are often referred to as 'Mental Graphemic Representations (MGRs)'. A critical prerequisite for this capacity is strong phonic knowledge.

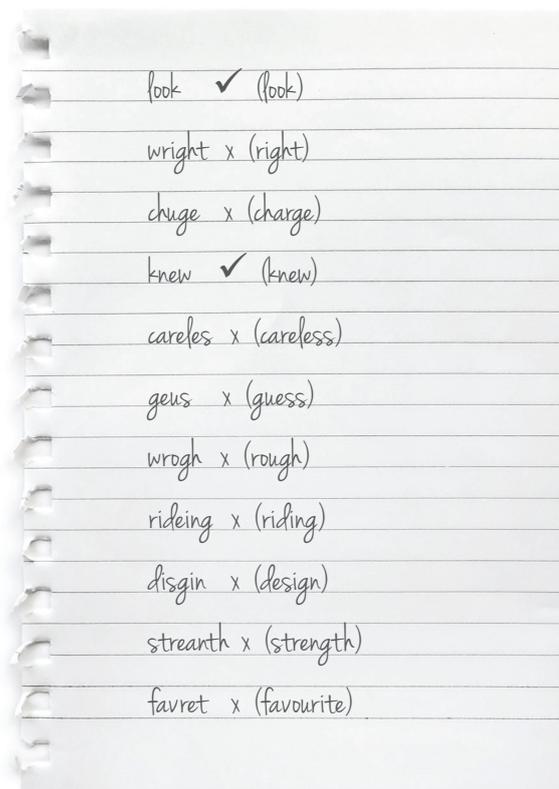
Students with weak orthographic processing rely very heavily on sounding out common words that should be in memory, leading to a choppy and laborious style of decoding. These students are also more likely to have difficulty applying knowledge of base words in order to decode a variation of a word and confuse simple words like 'on' and 'to' when reading.

Delays in orthographic processing are also linked to ongoing difficulties in letter recognition and letter reversals. If the shape and orientation of a letter is not fully consolidated and stored in visual memory, then students are more likely to make reversal errors and be unable to recognise when they have made a mistake.

As skilled readers need to recognise words and/or components of words automatically, there is a heavy reliance on orthographic processing in the development of reading fluency. Delays in this area are likely to inhibit a student's applied reading skills and ultimately affect his/her reading comprehension skills.

In addition, poor orthographic processing will almost certainly result in both a high rate of spelling errors and poor written expression. Students find it difficult to remember the correct spelling pattern for a particular word and don't seem to benefit from the editing tool, "Does it look right?". Rather they demonstrate the tendency to over-rely on phonological information, writing words like 'rough' as 'ruff' and 'night' as 'nite'.

• Delays in orthographic processing are also linked to ongoing difficulties in letter recognition and letter reversals.





Students with learning disabilities may have low self-esteem

Students with learning disabilities are often viewed as having low self-esteem as a direct consequence of the poor academic results they achieve at school.

In his book, 'Visible Learning', John Hattie outlines the evidence linking self-concept with achievement and suggests that the relationship is a reciprocal one. That is, having a positive academic self-concept (which includes aspects of pride, worth and confidence) has a positive impact on achievement but, in equal measure, achieving strong academic results can result in elevated academic self-concept. The correlation between measures of self-efficacy and achievement is among the strongest of self-measures, and a sense of confidence, in particular, results in better learning opportunities and improved outcomes.

An individual's self-concept is, however, multifaceted and someone who, for example, struggles to read out loud in class, may perform exceptionally well on the netball court. As a result, their self-concepts in relation to these two areas will almost certainly differ. General self-concept can be viewed as a combination of **academic self-concept** (including **ability** self-concept, **achievement** self-concept, and **classroom** self-concept), **social self-concept** (including **peer** self-concept and **family** self-concept), and **self-regard** or **presentation self-concept** (including **confidence** self-concept and **physical** self-concept). Evidence suggests that students with learning disabilities are particularly vulnerable to developing a poor sense of academic self-concept.

When we talk about self-esteem, we are really talking about the extent to which we feel positively or negatively about our self-concept or self-view. It is essentially 'how I feel about who I am'. Hattie suggests that students with high self-esteem are more adaptable, they function more easily in social environments, and they have a greater sense of control over the situations they find themselves in. Students with low self-esteem, on the other hand: tend to be less effective in engaging with others – often leading to difficulties accepting others; they feel powerless – often believing that they are at the mercy of other people and the environment; they have more difficulty coping with the world around them; and, they do not feel as though they are 'in control'. Obviously developing a positive self-esteem is highly desirable.

There are many interventions that claim to improve self-esteem but the most successful of these are recognised as cognitively-based rather than affectively-based. Interventions that encourage students to restructure their self-views through increased self-awareness, through the setting and achieving of goals, and through task-oriented activities that incorporate frequent opportunities for feedback are the most likely to result in long-term positive change.

It is apparent that some people with learning disabilities cope better with their difficulties than others. Researchers at the Frostig Centre in California, USA, have identified a number of factors that contribute to the success and wellbeing of all individuals.

Self-awareness: Successful people with learning disabilities recognise and understand their strengths and difficulties. While they are open and specific about their learning difficulties, they are also able to compartmentalise their learning disability as being just one aspect of themselves.

Proactivity: Engaging with the world around them is an important way that people with learning disabilities are able to make connections and feel positive about themselves. Successful people with learning disabilities believe that they are able to make decisions and choices which affect the outcomes of their lives.

Perseverance: Many people with learning disabilities demonstrate an ability to pursue their chosen path despite their difficulties. They don't 'give up'. Flexibility is also important, as successful individuals with learning disabilities are able to modify their approach to a problem or situation if necessary.

Goal setting: Successful individuals with learning disabilities set realistic and attainable goals and understand the step-by-step process necessary to reach goals. Their goals are specific yet flexible so that they can adapt to changes in circumstances and situations.

Presence and use of effective support systems: While both successful and unsuccessful people with learning disabilities may receive support and assistance from others, it is the nature of the support provided and how it is received that is most important. Successful individuals with learning disabilities actively seek and utilise the feedback, support and encouragement provided by teachers, family members, therapists and mentors, but also know when to reduce their dependence on others.

Emotional Coping Strategies: Having a learning disability can be stressful. While all people with learning disabilities are likely to experience stress relating to their difficulties, successful individuals with learning disabilities have developed effective ways of reducing and coping with stress and frustration. They are aware of situations that may trigger stress, recognise when stress is developing, and access coping strategies which are helpful and effective.

“Success and Dyslexia”, written by Nola Firth and Erica Frydenberg (ACER Press), is an excellent Australian program which enables schools to support students with learning disabilities and increases the capacity of students with learning disabilities to manage their feelings and deal with problems in a constructive manner. This program provides an evidence-based approach to developing coping skills, goal setting, positive thinking, problem solving and assertiveness.



Identifying and Diagnosing Specific Learning Disabilities

The diagnosis of a learning disability is a complex process that requires a deep understanding of the individual's learning challenges, the quality of intervention that they have received, and the profile of strengths and weaknesses that are common to specific learning disabilities.

A learning disability is widely-understood to be a processing disorder – neurobiological in origin. In the case of Dyslexia, there is a high degree of research evidence linking poor phonological processing with inadequate reading development. In Dysgraphia, the primary processing impairment is also phonological in nature but frequently includes the speed of language retrieval from long term memory (RAN). In Dyscalculia, the ability to process the concept of number is generally implicated, as is working memory capacity. Dysgraphia and Dyscalculia tend to be diagnosed later than Dyslexia, especially once the academic demands of school increase.

Who can diagnose a Specific Learning Disability?

Although teachers are well positioned to observe firsthand the struggles and challenges that a student has in any given academic area, it is important that the actual diagnostic process be undertaken by a specialist in the area. This generally involves:

- Psychologist (preferably with educational and/or developmental training) in the identification of Dyslexia, Language-based Dysgraphia or Dyscalculia;
- an Occupational Therapist in the diagnosis of Motor-based Dysgraphia or Developmental Coordination Disorder; and,
- a Speech Pathologist for difficulties related to Specific Language Impairments or Childhood Apraxia of Speech (CAS)

It is important that the diagnosis is made by a practitioner who is qualified to administer the range of standardised assessment tools required to make a clinical diagnosis. Depending on the assessment required, these tests may include standardised measures of: intellectual ability and cognitive skills; expressive and receptive language ability; underlying processing strengths and weaknesses; and, academic achievement across a range of domains; assessed under a range of conditions (e.g. timed versus untimed). In order to administer these tests, expertise in test administration and registration with a regulatory body such as the Australian Health Practitioners Registration Authority is required. The diagnosis of Dyslexia, or any other specific learning disability, cannot be made by someone who assesses vision, hearing, movement or any other skill in isolation.

How is a Specific Learning Disability Diagnosed?

Historically, there has been a great deal of debate over the methods used to diagnose learning disabilities and the associated recommendations for intervention made as a consequence of diagnosis.

Until recently, the most frequently adopted approach to learning disability identification was the “discrepancy model” which essentially defined a learning disability as a significant discrepancy between a student’s measured intelligence and his/her actual level of achievement in a specific academic domain. This discrepancy between anticipated results, based on a student’s cognitive ability, and their actual results, based on standardised achievement tests, was viewed as an indication of a learning disability.

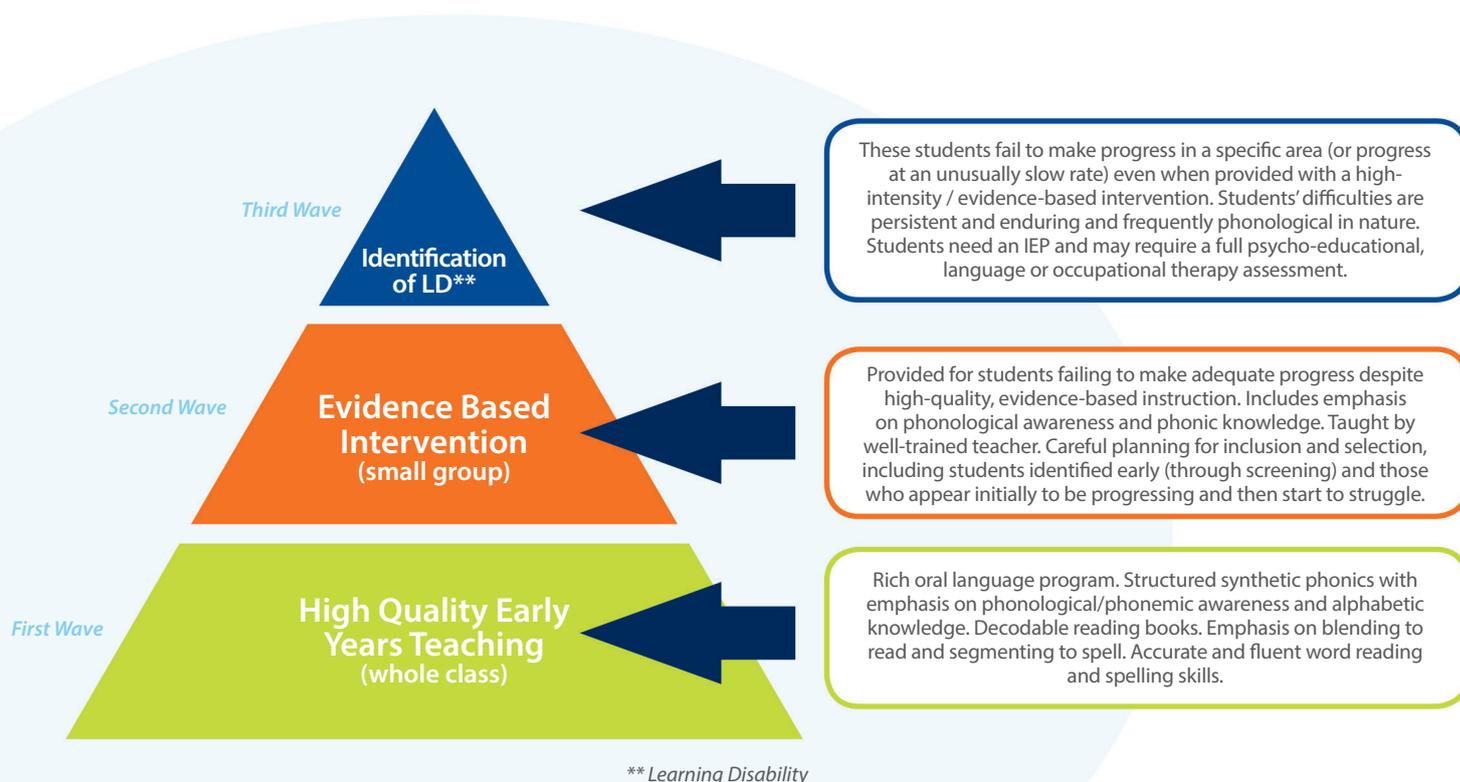
There were (and continue to be) many criticisms of this approach. Firstly, it operates as a ‘wait-to-fail’ method because it is unlikely that a significant discrepancy will be found prior to middle and upper primary. This means that essential intervention is delayed. Secondly, it can serve to discourage intervention because improvements achieved through sustained intervention may result in a reversal of diagnosis once a substantially significant ‘discrepancy’ is no longer evident. This may, in turn, lead to reduced support. And, thirdly, the discrepancy calculation has been frequently found to vary from school to school, and district to district – thereby resulting in students being identified against inconsistent criteria.

In the DSM 5 * Manual, learning disabilities are classified as ‘Specific Learning Disorders’ and are considered to be one of a number of neurodevelopmental disorders. An essential component of the revised diagnostic criteria is that students identified with specific learning disorders will have failed to respond as expected to appropriate intervention.

The Response to Intervention (RTI) Model

Over the past decade an alternative approach to learning disability identification has been suggested. The Response to Intervention (RTI) model involves the systematic monitoring of all students in an environment in which schools are providing an evidence-based core curriculum. The model also relies on the introduction

Figure 1. Identifying students at risk using the RTI model.



of increasingly intensive intervention processes in response to more frequent curriculum-based assessment. Students who continue to struggle academically; despite evidence-based instruction and curricula, supplemented by systematic intensive intervention, are considered to be students in need of ongoing support. Given their persistent difficulties, it is also considered likely that these students have a learning disability.

The advantages of the RTI model include: the earlier and more systematic introduction of intervention for all students struggling to acquire basic skills; and, the promotion of high quality instruction and evidence-based intervention across whole school communities. As a consequence, it has the potential to reduce the number of students who present with learning difficulties as a result of poor instruction and/or curricula.

It does, however, remain important that in cases where students fail to make progress despite high quality instruction and evidence-based intervention, an appropriate individual assessment is conducted. In most cases this will be a psychoeducational or neurocognitive assessment. This allows for the documentation of underlying processing deficits, additional developmental disorders and/or other educationally relevant weaknesses that might serve as primary or additional barriers to a student's capacity to respond to otherwise appropriate intervention(s).

In order to diagnose a learning disability, it is recommended that a combination of RTI and individual assessment be adopted, resulting in a more equitable, preventative and individualised approach.

Diagnostic Criteria for Specific Learning Disorder Diagnosis

The current DSM 5 guidelines for psychologists undertaking learning disability assessments specify that specific learning disorders with impairment in reading (dyslexia), and/or impairment in written expression, and/or impairment in mathematics (dyscalculia) are diagnosed through a clinical review of an individual's developmental, medical, educational, and family history, reports of test scores and teacher observations, and response to academic interventions.

The specific diagnostic criteria can be summarised as:

A pattern of difficulties learning and using at least one academic skill (e.g. reading accuracy/fluency; spelling accuracy; written expression fluency; mastering number facts) that:

- appear during the school-age years;
- are substantially below those expected for age (in the majority of cases);
- have the potential to significantly interfere with activities of daily living (including academic or occupational performance); and,
- have persisted for at least six months, despite well-founded, targeted intervention.

Although in most cases the affected academic skills will be well below average for age, it is appropriate to diagnose a specific learning disorder in cases where average achievement is sustained only through high levels of effort and/or support.

The academic deficits can be mild, moderate or severe and, although they begin during the school years, they may not become apparent until the demands on the academic skill exceed the individual's capacity (e.g. as in timed assessments, reading or writing lengthy texts).

It is important to note that a specific learning disorder will not be diagnosed if the academic skill deficit is better accounted for by intellectual disability, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, a lack of proficiency in the language of instruction, or inadequate instruction.

The model for diagnosis is essentially a hybrid model – incorporating both an individual assessment and an evaluation of how successfully a student has responded to well-founded intervention. It is designed to provide valuable information that will inform both remediation and ongoing support.

*DSM 5 – The Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition

Implementing the RTI model:

The needs of all students, including those with learning disabilities, can be catered for by implementing a three wave (or three tier) approach to instruction, assessment and intervention. Providing high quality instruction in literacy ensures schools are better equipped to identify and cater for the needs of students with both learning difficulties and learning disabilities. Using programs that are supported by reliable research evidence is central to this approach. The use of a structured synthetic phonics program is crucial to instruction at all levels, as well as the use of programs and teaching strategies to target additional areas of need such as working memory, vocabulary, comprehension and number work.

Wave 1 – The effective inclusion of all children in daily high quality teaching

Best practice teaching in the first wave (K-3) is based on a rich oral language program combined with a structured synthetic phonics program at a whole class level. Schools that achieve the best results and witness significant improvement for their students in this wave, are ones where there is consistency of programs across the early years and deliberate planning across those years. That is, the same program is implemented successfully in all years as compared to different programs operating in all different year levels.

Wave 2 – Additional small-group intervention to provide an opportunity to catch up

Children who require intervention at the Wave 2 level are 'at risk' of underachievement. This stage of intervention is aimed at boosting their literacy/numeracy achievement levels. Children at this level do not necessarily have a learning disability but their reading and writing levels are below average. It is expected that children who receive the additional group support at this level will 'catch up' with their peers. Small group intervention may include early literacy support, intervention programs or booster classes. Many of the strategies listed in Wave 1 apply to intervention at the Wave 2 level, however, their implementation will be more intensive, targeted and repetitious.

Wave 3 – Specific targeted intervention for individual children requiring intensive support

Intervention at the Wave 3 level is for students who are underachieving despite intervention and the presence of other strengths, talents, and access to qualified support teachers. This stage aims to reduce the gap between such students and their peers, and to facilitate greater access to Wave 1 and Wave 2.

Students at this level require a more in-depth assessment of their reading and spelling skills in order to identify specific areas of need. Wave 3 students require an Individualised Education Plan (based on analysis of errors from assessments) which involves regular assessments and monitoring of progress. These students also require individualised, intensive, explicit and sustained intervention using professionally produced, carefully developed, and evidence-based programs and resources, and may also receive small group support at the Wave 2 level.

Many of the recommended strategies provided below are appropriate for use across all three waves of instruction. It is, however, important to note that the strategies introduced at both Wave 2 and Wave 3 will almost certainly be of increased intensity, conducted at a slower pace, and include more opportunities for repetition and practise than when used for whole class instruction as in Wave 1. More detailed information on many of the strategies described below, in addition to recommended programs currently available, is contained on the attached CD.

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Phonological awareness and phonemic awareness			
Choose programs in the early years that focus on developing the ability of students to hear: the words in sentences; the syllables in words; the onset and rime in words; and the individual phonemes that make up every word we say.	Yes	Yes	Yes
Provide activities that teach alliteration and the identification and production of rhyme in the early years.	Yes	No	No
Explicitly teach the phonemic awareness skills of oral blending and segmenting and extend to activities that include the manipulation of phonemes within words.	Yes	Yes	Yes
Link spoken phonemes to written letters by providing students with opportunities to manipulate phonemes along with concrete letter forms (e.g., cut-out letters, plastic letters, or magnetic letters). Reinforce the sounds students are making when they speak, and relate these explicitly to the letters they use when they are writing.	Yes	Yes	Yes
Encourage students to notice what is happening in their mouth when they make a new sound. For example, use mirrors/puppets to explore: the movement of the lips, the teeth and the tongue; the amount of air used to produce the sound; and whether or not the vocal chords are vibrating to make the sound.	No	Yes	Yes
Commence literacy remediation lessons with a phonological awareness activity or game to help students “tune in” to the sounds of spoken language (phonological awareness activities should continue beyond the pre-primary years as warm-up activities).	No	Yes	Yes
Ensure that individual phonemes are modelled precisely and that students articulate them accurately.	Yes	Yes	Yes
Read to children daily and expose them to a range of text types and genres. Choose high quality and inclusive literature.	Yes	No	No
Phonics			
Choose an appropriate synthetic phonics program which is structured and systematic and includes lessons which follow the structure of review, teach, practise and apply to introduce phonemes and graphemes.	Yes	Yes	Yes
Provide short, discrete, explicit phonics sessions which build on the oral foundation to teach the 44 phonemes and the way we map those sounds onto letters in order to read and write.	Yes	No	No
Plan and teach accurate decoding skills, separate from comprehension skills, in order to allow children to master decoding and move on to vocabulary and fluency development.	Yes	Yes	Yes

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Use decodable readers to provide opportunities for students to apply the knowledge and skills they have acquired. Provide texts containing only the phoneme-grapheme relationships and high frequency words they have been taught.	Yes	Yes	Yes
Teach students to encode (spell) words as they are learning to decode to demonstrate the link between reading and spelling and the reversibility of decoding and encoding.	Yes	Yes	Yes
Provide opportunities to apply phonic knowledge plus encoding (segmenting) skills through dictation using sentences containing previously taught code knowledge.	Yes	Yes	Yes
Engage multiple senses when teaching new sound-letter correspondences.	Yes	Yes	Yes
Provide small group instruction in addition to the core program provided to the whole class in the general curriculum. Ideally, small group instruction should be implemented for 20 to 40 minutes, three to five times per week and should consist of two to four students with similar abilities.	No	Yes	No
Provide small group intervention that is teacher directed and includes explicit instruction with clear, corrective feedback given throughout the teaching and learning process.	No	Yes	No
Build students' phonic knowledge gradually by teaching sound-letter associations starting with the most common of the 44 sounds in English. Teach first in isolation and then integrate them with other phonic combinations to help encourage skill generalisation. Provide students with many opportunities to practise and build their skills.	Yes	Yes	Yes
Encourage students to apply phonic knowledge and phonemic decoding skills as their preferred approach to reading and spelling rather than "whole word" or visual strategies.	Yes	Yes	Yes
Spelling words should be introduced by listening to the word before the student sees the word. Encourage them to focus on the sounds in words, which can then be mapped to their letters and letter patterns.	Yes	Yes	Yes
Ensure regular assessment and monitoring of students' progress.	No	Yes	Yes
Choose an appropriate high quality program that reflects effective teaching and adheres to recommendations and evidence from research. Examples of such programs include, but are not limited to: Sounds-Write; Teaching Literacy to Learners with Dyslexia: A Multisensory Approach; Alpha to Omega; MINILIT, Reading Tutor Program (MULTILIT), Letters and Sounds, and Jolly Phonics.	No	Yes	Yes
Provide high quality evidence-based intervention on a one-to-one basis and with frequent sessions to students continuing to struggle even with small group work. These programs should be recognised as effective in a one-to-one high intensity intervention. For example: MULTILIT; Sounds-Write; Orton-Gillingham (ideally 3-5 times per week).	No	No	Yes
Use additional resources and specialised materials, such as letter tiles, magnetic letters, and cards to build or manipulate words.	No	Yes	Yes

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Introduce one or two high frequency words in a sequential manner using flash cards, matching games etc. Encourage students to use their phoneme-grapheme knowledge and skills of blending to decode regular high frequency words.	Yes	Yes	Yes
Draw the student's attention to the part of the high frequency word that can be decoded (this is the part of the word they already know) and any 'tricky parts' that are irregular. Explicitly teach "In this word this sound is ... but we spell it like this."	Yes	Yes	Yes
Incorporate gestures that demonstrate the blending of individual phonemes across a word from left to right in order to read words accurately. For example – in order to read the word shop from the board – point to 'sh' and say /sh/, then point to 'o' and say /o/ and then point to 'p' and say /p/. Follow this by pointing from left to right under the word and say 'shop'.	Yes	Yes	Yes
Regularly review previously learnt concepts, particularly those that are not yet securely retained in the student's memory.	Yes	Yes	Yes
Introduce homophones by explaining their different meanings, usage and spelling.	Yes	Yes	Yes
Provide frequent and immediate error correction and feedback.	Yes	Yes	Yes
Vocabulary			
Provide direct, explicit instruction and ample guided practise of the words selected for vocabulary instruction.	Yes	Yes	No
Introduce no more than 8-10 new vocabulary words at a time for older students and 4-5 new words for lower primary.	Yes	No	No
Provide a student-friendly definition for each word or concept introduced. Where words 'about a story' have been selected, relate them back to the story and use the context to support understanding.	Yes	No	No
Use vocabulary frames and templates, such as semantic webs and Frayer models, to develop student-friendly definitions of words. Identify examples and non-examples of words, and ensure students discuss why they believe some concepts are examples of the word whereas other concepts are not.	Yes	Yes	Yes
Provide examples of words in different contexts so students can see how a word's meaning changes and shifts.	Yes	No	No
Use visual aids, word-mapping activities, word lists/charts that describe feelings, personality traits, or actions, to develop and extend students' vocabulary.	Yes	Yes	Yes
Play vocabulary games to ensure student engagement such as: matching words with student-friendly definitions, associating selected words with students' own experiences, and extending sentence stems that include the target word. For example: The gregarious man was disappointed with the party because...	Yes	No	No
Teach basic concept words (prepositions and adverbs) such as first, last, above, below, on top, behind etc. to aid students in understanding academic instructions.	Yes	No	No
Develop activities that will ensure frequent and rich encounters with words, such as experimenting with selected vocabulary words in other school subjects or playing word games associated with a collection of words.	Yes	No	No
Develop a system that encourages students to take their word learning outside the classroom (e.g. students are encouraged to bring in evidence of hearing, seeing or using target words).	Yes	Yes	No

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Preview texts to be read and pre-teach the meaning and written form of difficult vocabulary that will be encountered when reading.	Yes	Yes	No
Ensure students can accurately pronounce new words in order to create a clear phonological representation (mental store) of it. Break the word into syllables for students who struggle to accurately articulate more complex words and encourage them to watch the modeller's mouth. Ask students to repeat the word 'out loud' on numerous occasions. For example: as a component of a game being played.	No	Yes	Yes
Provide opportunities for multiple repetitions of the new words in varied contexts both in the short and long-term to refine understanding of each word's precise meaning. Repetition needs to occur on the day new vocabulary is learnt and for a week following the first exposure, to ensure the new vocabulary is stored in long-term, usable (expressive) memory.	Yes	Yes	Yes
Once students can read accurately, encourage wide reading of a variety of text types including age-appropriate stories or information texts, wherever interest and motivation can be captured.	Yes	No	No
Expose students to high quality oral language that is typical of the vocabulary and grammar of written, literate English when delivering instructions and stories.	Yes	No	No
Explore meaningful parts of words (including prefixes, suffixes, roots and word compounds) and the use of contextual cues to infer a word's meaning; this allows for the development of independent analysis skills for interpreting word meanings.	Yes	Yes	Yes
Read age-appropriate or motivating texts aloud to students to expose them to more sophisticated vocabulary and complex sentence structures that rarely occur in spoken language, but frequently do in written texts.	Yes	No	No
Fluency			
Provide opportunities for 'repeated oral reading' of target word lists or short pieces of text. Students keep record of times and try to improve time over successive readings.	No	Yes	Yes
Model fluent reading (read aloud) while students follow along in the text. After reading a sentence or short paragraph ask the students to 'echo read' the same passage with expression and intonation.	Yes	Yes	No
Have students engage in repeated readings of texts at their independent level encouraging them to focus on intonation, flow and understanding.	Yes	No	No
Create opportunities for oral reading practise with teacher feedback.	Yes	Yes	Yes
Use a peer tutoring procedure to assist with the development of fluency of words, phrases and connected text.	Yes	Yes	No
Continue reading to students with daily modelling of fluent expressive reading.	Yes	No	No
Chart student's oral reading in words per minute (wpm) and monitor their progress over time.	No	Yes	Yes
Ensure students become familiar with targeted high frequency words to consolidate the capacity to read connected text.	Yes	No	No
Incorporate the use of software programs that focus on fluency through modelling and repeated readings (e.g., electronic talking books, Read Naturally).	No	Yes	Yes

Recommended Teaching Strategies

	Wave 1	Wave 2	Wave 3
Use activities that involve timed repeated reading and chart the student's progress until the target reading rate is reached.	No	Yes	Yes
Comprehension			
Activate prior knowledge of the content before reading a text, by previewing the information and encouraging students to make connections between what they know and what they will read.	Yes	No	No
Encourage opportunities for students to ask and answer questions through the use of Bloom's taxonomy and have discussions that generate questions at higher levels.	Yes	No	No
Use visual representations to help students identify critical information and concepts from their reading, such as mind maps, story outlines, sequence maps and compare/contrast diagrams.	Yes	Yes	Yes
Teach students to summarise during and after their reading in order to consolidate text information and extend classroom discussions. Students need to learn how to paraphrase.	Yes	Yes	No
Include comprehension processes such as clarifying, making inferences and predicting as part of daily lessons.	Yes	No	No
Focus on developing oral comprehension skills, including receptive vocabulary, knowledge of text structure and understanding of question forms, alongside reading comprehension skills and strategies.	No	Yes	Yes
Target oral vocabulary, figurative language and spoken narrative to improve reading comprehension skills.	Yes	Yes	No
Provide explicit teaching to develop students' knowledge of how sentences, paragraphs and texts are constructed.	Yes	Yes	Yes
Model and explicitly teach strategies to self-monitor comprehension so that students can identify when the text fails to 'make sense'. Promote the re-reading of sentences, looking forward or back in the text, and inferring meaning of unfamiliar words based on context and word type.	Yes	Yes	Yes
Encourage students in collaborative learning during structured reading activities. Students can take on specific roles (a) prior to reading: brainstorming prior knowledge and making predictions, (b) during reading: identify and discuss the main idea, difficult parts of the text or unfamiliar vocabulary and (c) after reading: identify questions and answers to check understanding.	Yes	No	No
Teach students to utilise the 'KWL' strategy throughout the reading process: What do I already Know? What do I Want to learn? What did I Learn from my reading?	Yes	No	No
Ensure students have receptive knowledge and use of common question forms and concepts, including 'when, where, who, how, why, which'. Begin with simple sentences as a base and then build to more complex sentences. For example: 'The boy ate the pie'. Who ate the pie? (the boy), what did the boy eat? (the pie) etc.	Yes	No	No
Generate questions that can be answered by referring to the text (literal and inferential) and those that require higher-level thinking (critical analysis, interpretation, extension of ideas from the text).	Yes	Yes	Yes
Teach the student to appropriately request clarification when they identify unfamiliar vocabulary or inconsistencies in written text.	Yes	Yes	Yes

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Teach explicitly the macrostructure of simple text types that follow a predictable format. For example, analyse a simple narrative to identify each structure element including setting (when, who, where), initiating event, problem, action, resolution and ending.	Yes	No	No
Use aids such as highlighting, underlining, embedded questions, semantic feature analysis relationship charts, study guides and mnemonic illustrations, as well as explicit teaching in their use.	No	Yes	Yes
Written Expression			
Teach students how to form simple, grammatically correct sentences. Explain the difference between speech fragments and complete sentences.	Yes	Yes	Yes
Teach students the functions of the parts of speech (e.g. nouns, verbs, adjectives) and how they can be used to build descriptive sentences. Begin with simple sentences and expand.	Yes	Yes	Yes
Provide explicit instruction on how to build complex sentences, adding clauses at the beginning, end and in the middle of simple sentences.	Yes	Yes	Yes
Teach strategies that enable students to combine sentences to form well-structured paragraphs.	Yes	Yes	Yes
Explicitly teach the impact of grammar on spelling.	Yes	Yes	Yes
Teach students to identify and define key words related to their topic. Create a word bank of appropriate and interesting terms or phrases and teach the students how to use them in their texts.	Yes	Yes	Yes
Analyse exemplary writing samples for specific features of the text-type, including content and structure.	Yes	Yes	Yes
Teach students to use templates/scaffolds to assist with planning and constructing their written responses. Allow students to draw pictures or dictate ideas during the planning stage.	Yes	Yes	Yes
Explicitly teach students all steps in the process of writing a text: planning (e.g. mind maps, dot points, graphic organisers), organising (using templates/scaffolds), writing a draft and finally editing to create a complete text.	Yes	Yes	Yes
Model how to verbalise sentences, supported with visuals or actions, prior to writing them to ensure their grammar is correct and meaning is clear.	No	Yes	Yes
Teach students to focus on proof-reading for one aspect at a time (e.g. sentence structure, punctuation, spelling errors)	No	Yes	Yes
Consider allowing students to dictate their ideas onto a digital recorder before transcribing their dictation into writing.	No	Yes	Yes
Allow students to dictate to a scribe or use assistive technology, such as iPad apps or Dragon Dictation, to transform spoken sentences into written text. This is particularly useful for students with poor spelling or laboured handwriting.	No	No	Yes

Recommended Teaching Strategies

Wave 1

Wave 2

Wave 3

Handwriting

Utilise a multisensory approach to teaching handwriting and letter formation (such as providing verbal prompts as the letter is being formed).	Yes	Yes	Yes
Provide a range of tactile media to practise forming letters (e.g. sand tray, paint bag, finger paints, scented markers, and vibrating or musical pens).	Yes	Yes	Yes
Practise forming letters on a range of surfaces and on a large scale. Students will find it easier to detect the shape and direction of letter formation if using large motor movements. Once they have the correct letter formation then transition to smaller letter writing on lined paper.	Yes	Yes	Yes
Place a visual prompt on the student's desk demonstrating how to form letters.	Yes	Yes	Yes
Encourage students to use a tripod grip or a monk's grip when writing as this will allow for longer and more fluid writing skills.	Yes	Yes	Yes
Use a pencil grip or specialist pens/pencils to assist with maintaining the correct pencil grasp.	No	Yes	Yes
Allow students to write bigger or smaller than usual until they have become fluid hand writers.	No	Yes	Yes
Teach students to use memory tricks to help with remembering the way a letter should look.	Yes	Yes	Yes

Number Work

Choose an appropriate evidence-based numeracy program which is structured and systematic and that logically builds on existing skills and returns to previously mastered skills to ensure understanding. Instruction in mathematics should emphasise conceptual understanding, and not just procedural knowledge.	Yes	No	No
Use concrete materials and manipulatives (Cuisenaire rods, MAB blocks, counters) to develop students' concept of number. Students should gradually transition towards using diagrams and pictures in place of concrete materials, and eventually receive an introduction to the symbol system that will enable them to represent number work in a more abstract way.	Yes	No	No
Utilise a structured and multisensory approach to teaching maths concepts (e.g. use of visual aides such as diagrams, charts or concrete apparatus).	Yes	Yes	Yes
Provide opportunities for students to apply their knowledge to real life situations, as well as abstract number problems.	Yes	No	No
Explicitly teach the language of maths and what the function of each word is.	Yes	No	No
Use questioning and ask students for explanations of thinking strategies and procedures, estimation of results etc.	Yes	No	No
Foster positive attitudes towards number work, and numeracy more generally.	Yes	No	No
Play games that teach and reinforce number concepts.	Yes	No	No

Recommended Teaching Strategies	Wave 1	Wave 2	Wave 3
Provide small group instruction, in addition to the program provided at a whole-class level. Small group instruction should be implemented for 20 to 40 minutes, three to five times per week.	No	Yes	No
Vary instructional strategies, using different manipulatives, examples and visual aids as necessary to assist student's understanding.	No	Yes	No
Model concepts using concrete materials, and allow students to use concrete materials for longer periods of time rather than rushing into the transitional and abstract phases.	No	Yes	No
Monitor students' progress and understanding in order to determine next steps in intervention.	No	Yes	No
Provide a high number of opportunities to practise skills.	No	Yes	No
Have students use calculators and/or addition and multiplication grids for computations.	No	Yes	No
Teach foundational knowledge and proceed in small progressive steps with frequent repetition of material and practise of skills until they appear to be mastered.	No	No	Yes
Prepare multiple representations of the same information (e.g. numbers can be represented with dots, objects, number and name).	Yes	Yes	Yes
Limit memory demands through the use of memory aides such as mnemonics and use of concrete manipulatives.	No	No	Yes
Check regularly that students have remembered and retained previously learnt concepts and material, and 'put back'/review any knowledge which has been forgotten.	No	No	Yes
Build up reasoning strategies for when faced with tasks that require a long sequence of steps due to memory problems.	No	No	Yes
Provide substantial opportunities for students to practise performing newly learned skills.	Yes	Yes	Yes
Encourage students to verbalise their thinking as they work through maths problems in order to identify any errors and monitor the stage they are at.	Yes	Yes	Yes
Prepare scaffolding questions to help students complete complex, multi-step tasks.	No	Yes	Yes

Selecting a successful intervention program

There are many intervention programs available to use, some of which are produced commercially and others that are freely available on the internet. It is important to note that the cost of the program does not necessarily determine the effectiveness. The following criteria are associated with programs most likely to achieve successful outcomes.

Evidence-based	It is important that the program is based on current research evidence and that its effectiveness is supported by independent reviews (i.e. not evaluated solely by the program manufacturer). Structured synthetic phonics programs (SSPPs) are considered to be evidence-based because they have been the subject of systematic reviews.
Explicit and direct instructional methods	Content is taught clearly and directly, not in an embedded or implicit manner. Explicit instruction directs student attention towards specific learning in a highly structured environment. See additional information on following page.
Multi-sensory	Teach using all the senses: hearing, seeing, saying and doing to ensure learning is retained.
Cumulative sequence	Builds on what has already been learned and previous learning receives further practice.
Sequential	A prescribed sequence of learning targets presented in small steps.
Repetitive	Regular systematic review of concepts and over-learning to ensure learning is retained in long term memory.
Systematic	Concepts and skills are taught in a step-be-step manner. For example, in a structured synthetic phonics program, a complete set of phoneme-grapheme relationships are taught sequentially, cumulatively and systematically.
Appropriate pace	It is important to introduce concepts and skills in small steps but at a reasonable pace. Each component is taught on its own with ample opportunity for practice. In subsequent sessions (preferably daily) – previous learning is reviewed, new concepts and skills are taught, and – again – ample opportunity for practice is provided.
Cover all areas of instruction	Phonemic awareness, phonics, decoding, fluency, comprehension, spelling (writing).
Assessment	Regular ongoing assessments of concepts taught to ensure the student is provided with instruction, resources and activities at the right level.

The components of effective instruction

Research indicates that the most effective teachers ensure students have acquired, rehearsed and connected knowledge effectively and efficiently, and incorporate the use of hands-on activities once students have learned the basic material.

(Rosenshine, 2012)

These component steps of acquiring, rehearsing and reviewing are critical to improved rates of achievement. Regularly reviewing material strengthens the connections between prior, current and future learning. It helps students to recall words, concepts and procedures effortlessly and automatically. In order to develop a skill to mastery students will sometimes require thousands of hours of practice. Reviewing the knowledge and concepts relevant to a particular area of learning prior to a lesson not only assists students to practise more successfully, but also assists any student with working memory weaknesses.

Successful teachers restrict the amount of material they present at any one time and ensure that guided practice is provided. This guidance should involve step by step modelling of each component skill with clear and concise explanations and feedback being provided.

Students need both: to engage in a significant amount of practice; and, to experience a high rate of success throughout the time they are practising. If the student is not experiencing a high rate of success throughout this period they may be rehearsing and retaining errors; these can then be very difficult to shift. Explicit instruction provides students with frequent practise and ongoing success.

Explicit instruction

Hollingsworth and Ybarra (2009) describe a number of instructional practices that underpin explicit instruction. These include:

- making the learning objective clear;
- reviewing and incorporating prior learning;
- teaching students both the underlying concepts and the skills required to achieve the learning objective, in a pre-determined step-by-step manner;
- ensuring students understand the importance of the lesson;
- providing extensive guided practice – working with the students until they have an understanding of the concepts, are able to master all component steps;
- reviewing the goal to ensure that it has been achieved; and,
- providing opportunities for independent practice of the acquired skill.

In order to deliver explicit instruction effectively teachers must: explain concepts and skills carefully and precisely from the outset; problem-solve by ‘thinking out loud’ so that students can learn how the teacher decides on a particular course of action; check for understanding (CFU) frequently – providing immediate targeted feedback; and, make use of meaningful objects to explain content and support multi-sensory learning.

Strategies that will improve learning outcomes for all students

Research indicates that there are a number of effective strategies that will improve the learning outcomes for all students, not just those with learning disabilities. Detailed below are the eight teaching and assessment strategies considered to be highly effective in supporting and enhancing learning and academic outcomes of students within the classroom.

Strategy	How to implement	Example of Resources/Approaches
High expectations	<ul style="list-style-type: none"> Articulate a belief that all students can achieve improved academic levels Do not 'dumb down' the curriculum, but rather encourage and support students to set high personal learning goals Maintain an expectation that students can achieve in line with their potential Use appropriate resources to provide students with access to the same material 	<ul style="list-style-type: none"> Provide material in alternative formats (text, audio, video) if required Discuss goal with the students in advance, making expectations clear Ensure students are aware of the steps required to achieve goals Provide scaffolding and feedback to ensure success
Ensure access to curriculum	<ul style="list-style-type: none"> Plan at a whole-school and classroom level for every student to be able to participate and learn Make adjustments to ensure students are able to engage with the curriculum and minimise barriers to learning Use explicit teaching methods and scaffolded learning, as well as offering multiple means of representation, engagement and expression 	<ul style="list-style-type: none"> Alternative methods to access curriculum content, such as e-books, video, assistive technology (voice to text/ text to voice software) Provide additional time to access material or complete an examination or assessment task Provide summaries of teaching content, and glossaries of new terms Provide a range of tasks for students to choose from
Reduce task into small 'chunks'	<ul style="list-style-type: none"> Do not present too much material, particularly new material, at once as this is likely to overwhelm students Break down new skill sets, concepts and tasks into small clear achievable steps that need to be taken in order to achieve the set objectives Proceed through the task on a step-by-step basis and in such a way that each step is mastered before the next step is introduced Provide immediate corrective feedback and reinforcement to ensure students have the skills and knowledge to achieve at each step 	<ul style="list-style-type: none"> Teacher or peer modelling of the steps required to complete the task Provide an example of the finished piece of work so that expectations are clear Ask students to complete smaller "chunks" that build together to complete the larger task

Strategy	How to implement	Example of Resources/Approaches
Teach to mastery	<ul style="list-style-type: none"> ■ Organise curriculum material into short units and create formative assessment for students to take on completion of each of the units ■ Requirement that students are to 'master' one set of lessons before they proceed onto the next ■ Unless students have attained mastery there is a danger that weaker students will fall behind when the next set of lessons is taught ■ When compared with students in traditionally taught classes, students in well-implemented mastery teaching/learning classes have been consistently found to reach higher levels of achievement and develop greater confidence in their abilities 	<ul style="list-style-type: none"> ■ Use of direct instruction ■ Use of explicit, structured, cumulative programs at both a whole-class and small group/one-to-one level, e.g., Jolly Phonics, Letters and Sounds, Sounds~Write, MultiLit, Orton-Gillingham, Spelling Mastery, Elementary Maths Mastery. ■ Ensure systems are in place for ongoing monitoring of individual student's progress
Support/scaffolding	<ul style="list-style-type: none"> ■ Provide scaffolds and support when concepts and skills are first introduced to students, and gradually withdraw as students become more competent. ■ Allow access to scaffolds for weaker students and when a particularly difficult problem/task is encountered ■ The provision of scaffolds and support assists students to achieve their learning goals and reduces anxiety 	<ul style="list-style-type: none"> ■ Teacher modelling of the steps required to complete a task ■ Cue cards, checklists, concept maps and writing templates/guides ■ A model of the completed task against which students can compare their own work ■ Use of assistive technology (e.g., electronic spellchecker, literacy software programs) ■ Provide the opportunity for students to receive feedback on drafts of assignments, or discuss outlines



Strategy	How to implement	Example of Resources/Approaches
Two way feedback	<ul style="list-style-type: none"> ■ Provide regular and targeted feedback alongside the practice of key skills and concepts ■ Feedback should explicitly communicate about some aspect(s) of the students' performance relative to a specific target criteria and provides information to help students progress in meeting those criteria ■ Feedback should be given at a time and frequency that allows it to be useful to students (e.g., immediately following completion of a task) ■ Check for understanding by asking students whether they have understood a specific teaching point ■ Ask students about quality of teaching – are they learning from the way in which materials and concepts are presented. Are there things that could be done differently? 	<ul style="list-style-type: none"> ■ Provide detailed written feedback on assignments, projects, tests ■ Use a marking grid that offers specific feedback against a pre-determined criteria ■ Offer oral feedback to students outlining specific ways in which they could improve their performance ■ Provide examples of high quality responses/performance and clarify what makes these examples high quality ■ Ask students for oral feedback on performance ■ Use questionnaires to gather information on effective or useful teaching styles and what areas could be approached differently
Revisit/repeat/reinforce	<ul style="list-style-type: none"> ■ Provide multiple opportunities for students to engage with new concepts and skills through a variety of mediums (visual, auditory, kinaesthetic) ■ Key statements, concepts and instructions should be repeated and/or highlighted in some way ■ Clear, explicit links should be made between new learning and previously learnt material in order to aid understanding ■ The more curriculum material is revisited, repeated, and reinforced, the stronger the neural connections to this knowledge become and the more easily accessible it is 	<ul style="list-style-type: none"> ■ Use a variety of teaching styles and methods including visuals, hands-on materials, and verbal explanations ■ Use repeated teaching methods, rehearsal of tasks, and intermittent practice ■ Have students summarise learnt material or repeat directions or procedures ■ Stop and check for students' understanding of material presented during lessons
Differentiate assessment	<ul style="list-style-type: none"> ■ Make adjustments to and modify assessment tasks for individual students to cater for different learning needs and a range of learning styles and preferences ■ Consideration should be given to the functional impact of the student's difficulties on their learning, following which alternative assessment strategies can be considered 	<ul style="list-style-type: none"> ■ Provide alternative modes of assessment ■ Allow extra time on examinations to read and analyse questions, organise thoughts, plan answers, and sequence material

Accommodations

Students adversely affected by learning disabilities are entitled under the Disability Discrimination Act, 1992 (DDA) to both a differentiated curricula and differentiated assessment. The aim of the DDA is to ensure that all students are provided with access to the curriculum and are given the opportunity to demonstrate their skills, knowledge and understandings, on the same basis as their peers. The Australian Disability Standards for Education (2005) provides guidance to teachers, school administrators and parents on their rights and responsibilities with respect to the DDA.

Accommodations include:

- Adaptations and modifications of classroom practices (teaching style, materials used, speed of delivery, method of teaching and the use of assistive technology)
- Strategies that do not reduce educational standards and requirements
- The use of alternative assessment procedures which take into account students' needs

Without accommodations, students will not be able to access the curriculum and will consequently learn less and less than their peers, they will not be able to demonstrate their skills and understandings and they are more likely to experience a high level of frustration and anxiety; reducing their chances of learning even further.

Useful Support Strategies

When considering the number and type of accommodations that each individual student requires, it is important to consider a number of factors.

- 1) Every student is different. The strategies that are useful for one student may not be as useful for another. Careful consideration of the individual profile of strengths and difficulties is required.
- 2) The type and level of accommodation needed by a student is likely to change over the course of their education. A younger student may need more support in developing and accommodating for early reading and spelling difficulties. As that student progresses through school and there is a higher demand on writing, provision of specific support in the areas of written expression, organisation and comprehension may be more suited.
- 3) The use of assistive technology is only as good as the student's familiarity with the software/hardware and the level of ease in which they are able to use it. Assistive technology does not suit everyone.

What do we mean by universal design?

The concept of universal design comes from architecture where it is recognised as essential to design buildings that will be accessible to everyone, including people with disabilities. Many of the design features used are viewed as universally positive, such as automatically opening doors and ramps into buildings. The concept in education is the same. Curricula, delivery methods and assessment should be designed in such a way that all students can participate and benefit.



Examples of effective accommodations

The following examples of accommodations are provided as a guide for teachers. Additional resources and information sheets can be found on the attached CD.

“Maintaining a Universal Design for Learning approach allows me to address the fundamental question faced by all educators in all settings; Can everyone in the class access the content I am delivering? This is just as relevant in a higher education environment, as it is in early childhood settings. If we want all our students to learn – we need to mix it up and cater for the whole class.”

Dr John O'Rourke Senior Lecturer ECU School of Education

Working Memory

Area of weakness	Accommodations
<p>Difficulty noted in:</p> <ul style="list-style-type: none"> • retaining information • processing lengthy task requirements or instructions 	<ul style="list-style-type: none"> ■ Parents and teachers should be aware of any identified or suspected difficulties in working memory ■ Structure instructions in a clear, concrete format by breaking them into small steps. Include visual prompts and a hands-on demonstration rather than relying on the student's memory for task instructions ■ Check that students have understood all verbal instructions by asking them to explain or repeat task requirements ■ Encourage the development of a diary system to set reminders for routine tasks/ assignments and teach students how to use this effectively ■ Encourage students to seek clarification or request information to be repeated in a different way by classmates or the teacher ■ Highlight or clearly define what information the student needs to gain from a text prior to reading ■ Rehearse steps or pre-learn strategies for complex tasks ■ Underline or highlight key pieces of information while reading text <p><i>For further information or suggestions, see tip sheet on Working Memory contained on attached CD</i></p>

Processing Speed

Area of weakness	Accommodations
Slow visual processing speed	<ul style="list-style-type: none"> ■ Use a timer to help the student keep track of the time when working ■ Provide additional time to complete work ■ Rehearse steps or pre-learn strategies for complex tasks <p><i>For further information or suggestions, see tip sheet on Low Processing Speed contained on attached CD</i></p>

Reading

Students with difficulties in reading comprehension, reading fluency and reading speed are significantly disadvantaged in the classroom, especially once the reading demands increase in upper primary and secondary school. The following accommodations are designed to reduce the impact of poor reading skills.

Area of weakness	Accommodations
Difficulties with reading comprehension, reading fluency and reading speed	<ul style="list-style-type: none"> ■ Use story maps to help the student gain meaning from passages ■ Highlight key words or phrases in the text while reading. Identify and teach those words to the student with which they are not familiar before introducing a text containing those words ■ Assist the student to determine what information would be preferable for them to gain from a text prior to reading ■ Teach the use of 'think-aloud' reading comprehension strategies ■ Ensure that print is not the only source of information for students ■ Enlarge print or change the font and line spacing. Number the lines and paragraphs in a text and give specific reference to the location of information ■ Provide extra reading time ■ Avoid asking students with reading difficulties to read out loud if doing so embarrasses them ■ Use pair or group discussions to complete revision exercises ■ Set practical tasks instead of using tests requiring fluent reading skills ■ Provide alternatives to reading passages, such as using illustrations for interpretation of subject content ■ Encourage the use of assistive technology or ICT to reduce the burden of reading (e.g. audiobooks, text to voice software and video recordings to support and illustrate text content) ■ Arrange extra time for students with dyslexia to complete a test ■ Provide examination questions in a tape recorded format so students can listen to the questions ■ Keep written questions and instructions short <p><i>For further information or suggestions, see tip sheets on Reading and Assistive Technology contained on attached CD</i></p>



Spelling

Spelling difficulties have the potential to significantly impact a student's writing capacity and often result in less sophisticated written vocabulary and longer writing times.

Area of weakness	Accommodations
Difficulties with using effective spelling strategies and poor orthographic processing	<ul style="list-style-type: none"> ■ Allow the use of a spell check on the word processor or a hand held spell checker when spelling is not the area of assessment ■ Allow content knowledge to outweigh spelling in written expression tasks. ■ Provide a word bank or glossary of terms relevant to the topic ■ Encourage the use of assistive technology when the purpose of the assessment is not spelling (e.g. word prediction software, talking spell check) <p><i>For further information or suggestions, see tip sheets on Spelling and Assistive Technology contained on attached CD</i></p>

Written Expression

Area of weakness	Accommodations
Delays in written expression ability that are preventing the demonstration of skills and knowledge	<ul style="list-style-type: none"> ■ Provide extra writing time ■ Provide alternative modes of assessment such as oral work, illustrations, multiple choice format as a substitute for a long written assignment ■ Provide a framework for extended writing tasks and model different types of subject writing ■ Issue writing guidelines, templates, and paragraph headings to support the structure of extended writing ■ Use mind mapping, bullet points, etc. to help with planning and structure ■ Encourage students to work in note form, concentrating on key words or terms ■ Provide access to a computer for written work and make sure that editing features and the spellchecker are used ■ Allow rests when extended writing is required ■ Allow the use of technological aids such as spellcheckers, word processing, planning tools and voice-activated software for writing tasks (e.g. Inspiration and Dragon Dictation) ■ Permit the use of digital audio recorders to be saved as voice files or transcribed later ■ Provide clear and explicit feedback on errors in writing and suggest possible corrections/amendments for redrafting <p><i>For further information or suggestions, see tip sheets on Written Expression Difficulties and Assistive Technology contained on attached CD</i></p>

Handwriting

Area of weakness	Accommodations
Handwriting difficulties	<ul style="list-style-type: none">■ Allow extra time for writing tasks or reduce the amount that needs to be written■ Allow student to take breaks when writing so they can put pencils down and shake or stretch their hands■ Provide a template or blank copies of diagrams, charts, etc. for completion rather than asking the student to create one from scratch■ Allow alternatives to hand-written responses e.g. use of a computer, a scribe, or a digital recorder■ Do not penalise a student with handwriting difficulties for poor presentation of work or spelling■ Teach strategies for improving handwriting skills where possible■ Limit the need for draft copies, or have the student type their final copy instead of re-writing it■ Allow students to write with pens or pencils of their choice■ Allow students to write smaller or larger depending on their preference <p><i>For further information or suggestions, see tip sheets on Handwriting Difficulties and Assistive Technology contained on attached CD</i></p>

Copying Information

Area of weakness	Accommodations
Difficulty copying information correctly, accurately and with comprehension.	<ul style="list-style-type: none">■ Reduce the amount to be copied across all subject areas by providing the information in another form, such as typed notes, an audio copy of the information, or a photocopy of another student's notes■ Check the student's copying and correct any errors in the accuracy of the information■ Notes on the board can be written with lines in alternating colours to aid the student with keeping their place■ Do not expect a student to stay back in class to finish copying information■ Allow students to take a photo with an electronic device (e.g. iPad, iPhone)



Mathematics

Area of weakness	Accommodations
Difficulties with conceptual understanding and procedural knowledge in mathematics, and poor understanding maths vocabulary	<ul style="list-style-type: none"> ■ Create word walls, word banks, and other resources to help with vocabulary terms for mathematics ■ Make problems easier to understand by revising sentences to be shorter and more direct ■ Clarify and re-word directions to ensure understanding of key steps. Identify essential vocabulary and decide on common terms to have consistency across the grade(s) ■ Allow the use of a calculator and computer software programs (e.g. Numbershark and Maths Mania) ■ Use graph paper to assist in organisation of digits when writing. ■ Adjust the level of difficulty by reducing the complexity of tasks or using friendlier numbers ■ Change the sequence of problems on an assessment to start with easier ones ■ Reduce the number of problems on a page and provide more room for the student to show their work ■ Allow the use of manipulatives to assist with visualising maths concepts <p style="text-align: right;"><i>For further information or suggestions, see tip sheet on Mathematics contained on attached CD</i></p>

Attention and Concentration

Area of weakness	Accommodations
Difficulty sustaining attention and completing set tasks	<ul style="list-style-type: none"> ■ Start lessons with a task that students are able to complete successfully then increase the task demands incrementally ■ Use peer-assisted learning to increase active engagement in tasks ■ Divide assignments into manageable parts ■ Have a set procedure for the class ■ Maintain structure within the classroom ■ Use a signal to focus or refocus attention ■ Provide visual aids to reinforce what has been said orally ■ Provide concrete manipulative materials ■ Provide direct instruction <p style="text-align: right;"><i>For further information or suggestions, see tip sheet on Attention and Concentration contained on attached CD</i></p>

Organisation and Planning

Area of weakness	Accommodations
Difficulty planning and organising tasks, and working independently	<ul style="list-style-type: none"> ■ Provide additional scaffolding and structure for assignments and in-class activities ■ Provide clear guidance on the steps required to organise and complete tasks ■ Use visual aids (e.g. structured writing guides or visual checklists) so that students can check they have followed the correct sequence, or completed the requirements of a given task ■ Use pictorial cues to assist students with remembering the items they require for school or specific tasks ■ Monitor the notebook/diary system, particularly homework assignment pages. ■ Teach students to break assignments into steps and help them to organise their work and get started ■ Provide a weekly time for cleaning out desk and reorganising materials ■ Colour code materials and resources. This can be linked to colour coding class/ student schedules <p><i>For further information or suggestions, see tip sheet on Organisation and Planning contained on attached CD</i></p>

Anxiety

Area of weakness	Accommodations
High anxiety in test situations	<ul style="list-style-type: none"> ■ Allow more time for written assignments ■ Allow the test to be taken in a different environment ■ Give shorter and more frequent tests ■ Provide additional practice of tests and rehearsal of task requirements/strategies ■ Place fewer questions or problems on a page and enlarge print ■ Reduce the number of items in matching tests ■ Give multiple-choice tests instead of objective tests ■ Be aware of overall test readability ■ Discuss the test format ahead of time ■ Give additional prompting and structure during the test ■ Summarise the most important ideas with concept cards ■ Review material with concept cards ■ Encourage the use of relaxation and anxiety management strategies. Support and guidance regarding these can be obtained from the School Psychologist



Study Skills – Note Taking

Area of weakness	Accommodations
Difficulties summarising and revising learnt material	<ul style="list-style-type: none"> ■ Provide a printed or electronic summary of the information to be presented in class in advance ■ Identify a partner or classmate whose notes can be photocopied ■ Allow the use of a digital or tape recorder so that students can record important information ■ When dictating, spell out any technical or difficult words for all students ■ Provide summaries of chapters of books to support students' note taking skills ■ Provide a framework for note taking to help students organise their own notes ■ Teach the use of bullet points and summaries for note taking ■ Allow the use of mind maps, charts, and diagrams for note taking ■ Allow the student to use a computer to type notes if touch typing skills are well developed ■ Encourage the student to highlight important information in text prior to note taking

Use of Assistive Technology

"Once I was given the opportunity to use a 'talk-to-text' program in many of my subjects, my academic results improved dramatically!"

Katie – Aged 16 years

When considering the processing difficulties frequently evident in the profiles of students with learning disabilities, it is not surprising that the challenge to participate becomes even more difficult as the demands of schooling increase.

Whilst remediation and good quality literacy instruction go some way towards improving students underlying skills, the use of assistive technology not only allows students the opportunity to improve their understanding and engagement in the learning process, it also allows them to better demonstrate their skills and knowledge more independently and at a level more commensurate with their overall understanding.

What is Assistive Technology?

The term "Assistive Technology" is usually applied to electronic devices and computer hardware and software that increase or maintain the capabilities of an individual with a disability. Assistive technology (AT) includes those devices that assist all students, regardless of the presence of a disability, and those devices that have been specifically designed to assist individuals with a disability (adaptive technology).

For students with SLD, the opportunity to use AT to support and reinforce the learning process along with reducing the functional impact of their learning disability, means that their overall level of success is greatly improved. As with other classroom accommodations, the purpose of using AT is not to provide the student with an advantage but rather, it reduces some of the burden of lower literacy or numeracy proficiency.

All students, including those without a learning disability, can benefit from using some of the assistive technologies available. AT can be used in a variety of manners within the classroom environment to support the general teaching process and to provide additional remedial support as it allows for repetition and rehearsal of learnt skills. AT use for general classroom instruction also allows for multisensory teaching opportunities that will not only benefit the student with SLD, but all students within the classroom.

• The term "Assistive Technology" is usually
• applied to electronic devices and computer
• hardware and software that increase or
• maintain the capabilities of an individual
• with a disability



What are some examples of assistive technology?

Assistive technologies include, but are not limited to, the following:

Text to Speech	Allows any electronic text that can be highlighted to be read aloud by a computer or mobile device.
Voice Recognition	Allows a computer or enabled hand held device, to be trained in how you speak, and once trained, to write down everything you dictate into any active textbox.
Digital Recorders	Enables students to recall, plan, practise speeches, practise pronunciations, and dictate information.
iPads and Tablets	Provides a multisensory learning experience and there are a large number of apps that can be used to support students across a variety of learning areas.
Electronic Spell checkers	Uses phonetic patterns to suggest words for a poor speller when a computer is not available.
Word Prediction software	Uses phonetic and grammar patterns to suggest words as each letter/word is typed.
Visual Search Engines	Displays a picture of a page rather than the text headings or written content of a webpage.
Literacy Specific Software	Used to support reading and writing. Includes templates for writing, graphic organisers, grammar checkers, and study tools.
Educational Software	Provides support for the development of phonological awareness and phonics.
Electronic Resources and books	Can be used with reading software and mp3 players/iPods.

The applications of AT are far and wide for each student. The usefulness of AT will vary depending on each student's ease at using the AT and depending on their individual needs and difficulties.

• The use of multimedia and electronic information allows students with reading disabilities' to improve their comprehension of a topic or idea without being dependent on their reading ability

Examples of effective AT options for the student with a learning disability:

- The use of multimedia and electronic information allows students with reading disabilities to improve their comprehension of a topic or idea without being dependent on their reading ability
- Computers and word processors can reduce the burden of editing and re-writing assignments, making the writing process faster and allowing students to work more independently
- A photo taken with any device that has a camera may be used instead of copying information from a whiteboard. This information can be stored digitally and in some cases converted to text
- An MP3 recorder on any device can record ideas and help overcome short term memory difficulties

When should Assistive Technology be introduced?

Some students will find it very beneficial to use assistive technology and educational software to support the early development of literacy skills and letter-sound awareness. Other students will find that their need for AT does not emerge until much later in their education.

Matching students' needs with the use of assistive technology should happen when the need arises.

Early on in Primary school, students are more likely to benefit from the use of educational software and online learning programs to help support reading and spelling development. Students at this level are also likely to benefit from the multisensory nature of iPads, tablets and the interactive whiteboard.

In Upper Primary and Secondary school, the use of AT may be extended to the provision of assistive technology to accommodate for the difficulties that the student may be experiencing. Software such as Text to Speech allows for better comprehension of information and independent learning, whilst software to support the writing process can be introduced to assist with the high demand on writing in the later years of school.

Technology to assist with organisation, study skills, time management and memory can be introduced at any stage.



What is a Dyslexia Friendly school?

A Dyslexia-Friendly, or LD-Friendly, school is essentially a school community that welcomes, values, and includes all students, regardless of their level of ability or capacity to engage successfully with the school curriculum.

These schools ensure that they have appropriate policies and practices in place that will result in all students being able to participate on the same basis as their peers, and that will enable all staff members to feel confident and well-prepared in their endeavours to successfully support students affected by learning disabilities.

Dyslexia-Friendly schools are schools which:

- Recognise the effect of Learning Disability on student achievement and wellbeing
- Actively improve the support of students with learning disabilities within the school
- Value the professional knowledge of teachers and support staff through a commitment to the provision of ongoing professional learning opportunities in the areas of learning disability and literacy
- Develop policies and practices to ensure that students with learning disabilities receive high quality teaching and appropriate intervention and accommodation
- Implement and ensure adherence to such policies
- Recognise that, within the Dyslexia-Friendly School, everyone has a role. These roles must be resourced and supported appropriately

There are a number of existing Dyslexia-Friendly Schools models that are comprehensive and easily accessible. Excellent examples are those provided by The British Dyslexia Association and the International Dyslexia Association.

See the BDA Dyslexia-Friendly Schools Pack at http://www.bdadyslexia.org.uk/files/dfs_pack_English.pdf and the IDA guide to Dyslexia in the Classroom: What Every Teacher Needs to Know at <http://www.interdys.org/ewebeditpro5/upload/DyslexiaInTheClassroom.pdf>

Appendix 1

Contents of attached CD

- Full Copy** – Understanding Learning Difficulties: A Practical Guide
Full Copy – Disability Standards for Education 2005
-

- Information Sheet 1** – Structured Synthetic Phonics: A Guide for Teachers and Parents
Information Sheet 2 – Examples of High Quality, Evidence-Based Phonics Programs
Information Sheet 3 – Developing Phonemic and Phonological Awareness Skills
Information Sheet 4 – Alphabet Activities
Information Sheet 5 – Reading Remediation for Lower Primary Students
Information Sheet 6 – Reading Remediation for Upper Primary and Lower Secondary Students
Information Sheet 7 – Reading Remediation for Older Students and Adults
Information Sheet 8 – Assisting Reading Development: A Guide
Information Sheet 9 – Spelling Remediation for Lower Primary Students
Information Sheet 10 – Spelling Remediation for Upper Primary and Lower Secondary Students
Information Sheet 11 – Spelling Remediation for Older Students and Adults
Information Sheet 12 – Phoneme-Grapheme Mapping
Information Sheet 13 – Wonderful Words: Building Vocabulary and Phonological Awareness
Information Sheet 14 – Written Expression Remediation for Primary Students
Information Sheet 15 – Written Expression Remediation for Secondary Students and Adults
Information Sheet 16 – Writing Exam Essays
Information Sheet 17 – Hamburger Writing Model
Information Sheet 18 – Improving Handwriting and Pencil Grasp
Information Sheet 19 – Strategies to Address Letter Reversals
Information Sheet 20 – Developing Mathematics Skills
Information Sheet 21 – Low Processing Speed in Primary School Students
Information Sheet 22 – Low Processing Speed in High School Students and Adults
Information Sheet 23 – Strategies to Support Poor Auditory, Visual and Working Memory
Information Sheet 24 – Classroom Support for Children with Working Memory Problems
Information Sheet 25 – Attention and Concentration
Information Sheet 26 – Accommodations for Handwriting Difficulties
Information Sheet 27 – Classroom Accommodations for Students with Learning Difficulties and Disabilities
Information Sheet 28 – Accommodations for Older Students and Adults
Information Sheet 29 – Accommodations for Adults to help at Work
Information Sheet 30 – Accommodations for Adults to help with Training
Information Sheet 31 – Computer Software and Assistive Technology for Lower Primary Students
Information Sheet 32 – Computer Software and Assistive Technology for Upper Primary and Lower Secondary Students
Information Sheet 33 – Computer Software and Assistive Technology for Older Students and Adults

*The information on the CD can be photocopied for school purposes only.

Appendix 2

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Would you like more information?

There are SPELD organisations in almost all Australian States and Territories offering a wide range of support and educational services to families, schools and allied health professionals. Please go to the AUSPELD website for further information, or to locate the contact details for your nearest SPELD.

www.auspeld.org.au

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