

EXAMPLE REPORT



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PECS Example Specific Learning Disorder Report:
John Smith

Strictly Confidential

RATIONALE

*This **Example Comprehensive Psychological Report** is provided to act as an example of the breadth and thoroughness of an assessment performed by Psychological & Educational Consultancy Services (PECS).*

The assessment components address the DSM-5 (APS, 2013) criteria for a Specific Learning Disorder and the results are accepted by all the various education organisations in Western Australia.

BRIEF BIOGRAPHY OF THE AUTHOR

Dr Shane Langsford is a highly qualified and very experienced psychologist who has conducted more than 4000 child and adult assessments since establishing Psychological & Educational Consultancy Services in 1999.

Dr Langsford's qualifications include a Bachelor of Psychology, a Bachelor of Education with First Class Honours, and a PhD.

Dr Langsford is fully registered with the Psychology Board of Australia (PBA) and the Australian Health Practitioners Regulation Agency (AHPRA).

Dr Langsford is a Full Member of the Australian Psychological Society (APS), Australian Association of Psychologists (AAPi), Australian ADHD Professionals Association (AADPA), and ADHD Australia.

Dr Langsford is also an APS College of Educational & Developmental Psychologists Full Academic Member. To be awarded Full Academic Member status, an individual must have completed a PhD in psychology, have at least two years' experience as a researcher or educator in psychology in the College specific area of practice, and have published a notable body of relevant research in the College-specific area of practice.

In 2015, Dr Langsford was personally selected from a shortlist by the then Federal Minister of Health (the Hon Sussan Ley) to be part of the 13-member Mental Health Expert Reference Group (MHERG). The group was formed to provide advice to the Commonwealth Department of Health in relation to the government's response to the National Review of Mental Health Programmes and Services. Dr Langsford was the only practising psychologist in Australia appointed to the group, and the only member in the group from Western Australia. (For more information, see <https://www.pecs.net.au/pecs-profile>)

With regards to ADHD, Dr Langsford has conducted over 1500 ADHD assessments for various Psychiatrists and Paediatricians, was asked in 2014 to be on the National Shire ADHD Expert Panel for the "A Snapshot of ADHD: A Consumer and Community Discussion", and in April 2018 was the only Psychologist from Australia invited to the ADHD Institute's "Meeting of the Minds" Forum in Madrid (Spain). Dr Langsford was for the second year running once again the only Psychologist from Australia invited to the Forum, which was held in Munich (Germany) in November 2019. (For more information, see <https://www.adhd-institute.com>)

Dr Langsford's extensive knowledge of a wide range of disorders led to the creation of the PsychProfiler, which is a reliable and valid instrument oriented to the DSM-5 and has been the most widely used Australian global psychiatric/psychological/educational assessment tool since 2004. (More information - www.psychprofiler.com)

WHAT IS A COMPREHENSIVE PSYCHOLOGICAL REPORT?

A Comprehensive Psychological Assessment (CPA) is the systematic collection and analysis of developmental, behavioural, socioemotional, cognitive and/or educational information for the purpose of making inferences about underlying brain function.

These inferences are achieved by investigating an individual's strengths and weaknesses across the aforementioned areas and identifying any patterns that may exist.

Ultimately, the investigation's aim is to rule out the presence of any clinically significant afflictions, or if indeed present, to facilitate diagnosis of the core underlying problem, identify its aetiology and impact on the individual, and identify any comorbid concerns that may also exist.

Most diagnoses are genetic, hereditary and familial in nature, with a significant minority being environmental/experiential in origin.

A Comprehensive Psychological Report (CPR) contains the information garnered from the CPA and is primarily compiled to convey the information to other medical, health, and educational professionals (often the referrer) for the purpose of specialist diagnosis, and/or the implementation of intervention/treatment

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[For quick interpretation, please read the Summary, Conclusion, and Recommendations sections only.](#)

BIOGRAPHICAL DETAILS

Name:	John Smith
Date of Birth:	14/04/2007
Gender:	Male
Age:	13 years
Grade:	9
School:	Local High School
Address:	123 West Coast Drive, TRIGG WA 6029
Parent's Phone Number:	0444 444 444
Parent's Email Address:	smith@example.net.au

REFERRAL INFORMATION

John was referred to Psychological and Educational Consultancy Services (PECS) by Dr Jane Brown (Consultant Paediatrician) for a *Comprehensive Psychological Assessment* and indication of whether the results are reflective of an individual with a Specific Learning Disorder.

INFORMED CONSENT

John's parent(s) were informed of the reason for the assessment, the assessment components, and that the results would be used to compile a report which would be provided to them and the referrer (if applicable).

John's parent(s) indicated that they understood all that was conveyed to them and signed a Consent Form acknowledging that they consented to the administration of the assessment; and for the report to be generated and disseminated accordingly

CURRENT CONCERNS

From a presented list, John's parents identified concerns in the following areas:

- Attention
- Learning
- Spelling
- Reading
- Written language
- Memory

BRIEF BACKGROUND INFORMATION

Background information reported by John's parent(s):

- Was born with no apparent complications.
- Reached most of the major developmental milestones (e.g., crawling, walking, toileting) during the expected age ranges; speaking short sentences was achieved late.
- No major medical or neurological conditions.
- Normal visual and auditory acuity reported.
- No prescription medication use.
- Is a mix of right and left-handed/footed; John's older brother is left-handed.
- John's mother reported she was also late to speak, experienced similar academic difficulties during schooling and received English remediation.
- John's older brother has been diagnosed with Dyslexia and ADHD.
- Past assessments and interventions include;
 - Speech Therapy (at age 3 to 6 years) for an articulation error with /th/ sounds (e.g. "fwee" for three, "bofe" for both, and "fing" for thing).
 - Occupational Therapy (at age 7 years) to help with poor coordination and pencil grip.
 - Literacy remediation (Reading Recovery Programme) since Grade 1, however, this has produced little improvement.
- Was retained in Pre-Primary due to; "not being academically ready and having obvious difficulty with speech".
- John's mother reported John;
 - Was a very active 2 to 3-year-old.
 - Is very impulsive, fails to listen to or follow instructions; will not sit within a group.
 - Had problems learning the alphabet; still reverses letters and words.
 - Inaccurate and slow reading; further concerns regarding his reading comprehension.
 - Difficulties with spelling and transferring ideas onto paper (e.g. essay writing).
 - Runs out of time during timed assessments.

Background information reported by John's teacher:

- Struggles with un-structured activities, both in the classroom and at recess and lunchtime.
- Fidgets constantly in the classroom, calls out, leaves his seat, and hastily completes work.
- Is generally interested in what is happening in the classroom and is curious about different subjects.

Estimate of Academic Achievement Levels:

Presented below are parent estimates of John's achievement in the main academic areas:

Maths:	<input type="checkbox"/> Well Below Average	<input type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input checked="" type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Reading:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Writing:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Spelling:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Language:	<input type="checkbox"/> Well Below Average	<input type="checkbox"/> Below Average	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average

Past testing:

- **NAPLAN Year 5:**

- Reading – below average
- Writing – well below average
- Spelling – below average
- Grammar & Punctuation – below average
- Numeracy – average

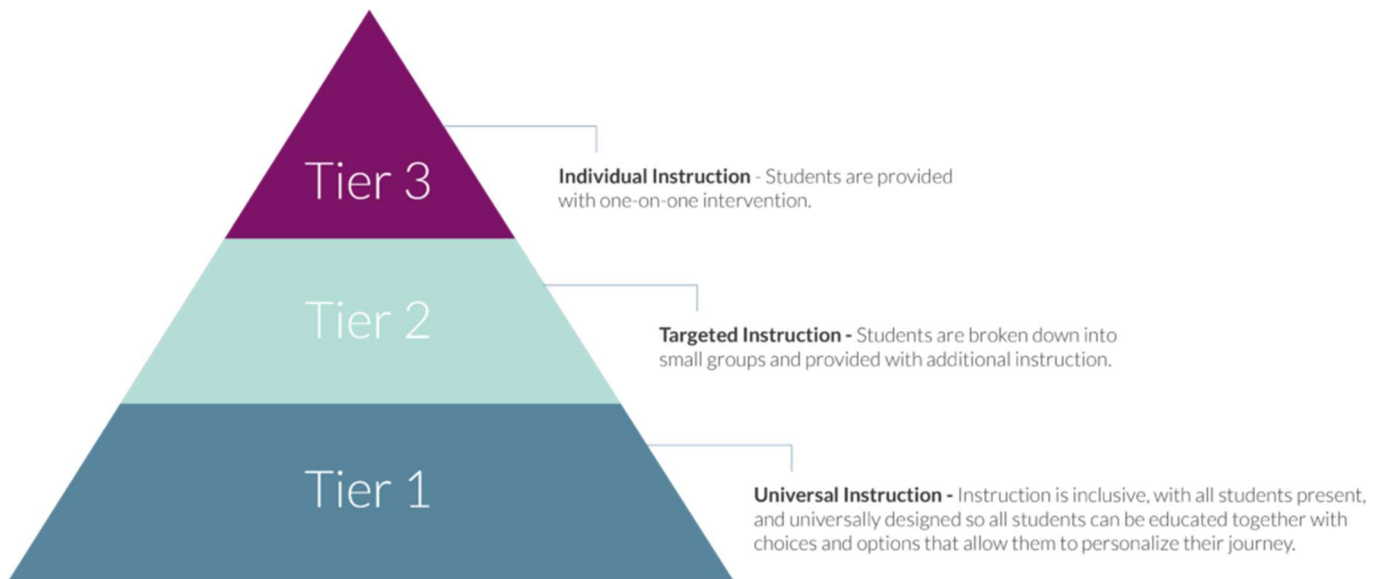
- **NAPLAN Year 7:**

- Reading – well below average
- Persuasive Writing – well below average
- Spelling – well below average
- Grammar & Punctuation – below average
- Numeracy – well above average

Please note that only a brief overview was obtained due to John and his parents already having provided more detailed background information to Dr Brown.

See checklists for more behavioural information.

PAST EDUCATIONAL INTERVENTION



As per the DSM-5 Diagnostic Criteria (p. 66), a formal diagnosis of a Specific Learning Disorder (SLD) can only be given if the “*difficulties learning and using academic skills*” have persisted for at least 6 months, “*despite the provision of interventions that target those difficulties*.”

The DSM-5 states (p. 68) *In children and adolescents, persistence is defined as restricted progress in learning (i.e., no evidence that the individual is catching up with classmates) for at least 6 months despite the provision of extra help at home or school.*”

With regards to the level of intervention required to satisfy the DSM-5 intervention requirement, given the DSM-5 is a hybrid approach incorporating elements of the Low Achievement model, Response to Intervention (RTI) model, and Ability-Achievement Discrepancy (AAD) model, it is generally considered that it must be Tier 2 or higher.

Tier 2 intervention involves Targeted Assessments, Targeted Instruction, and Small-Group Intervention. Tier 3 intervention involves Intensive, Individualised remediation that is usually provided by a specialist tutor/remediator in a one-on-one environment outside of the classroom. When using the RTI model by itself to diagnose a SLD, a 6 or greater month history of Tier 3 intervention is recommended.

PAST INTERVENTION:

John has received extra remediation in the below academic areas:

Reading Intervention:

Reported by Parent:

- John has been receiving individualised reading tutoring one hour per week for the past two years from a registered DSF tutor.

Reported by Teacher:

- John has been receiving individualised reading tutoring one hour per week for the past two years from a registered DSF tutor.

Writing Intervention:**Reported by Parent:**

- John has been receiving individualised writing tutoring one hour per week for the past two years from a registered DSF tutor.

Reported by Teacher:

John has been receiving individualised writing tutoring one hour per week for the past two years from a registered DSF tutor.

Spelling Intervention:**Reported by Parent:**

- John has been receiving individualised spelling tutoring one hour per week for the past two years from a registered DSF tutor.

Reported by Teacher:

John has been receiving individualised spelling tutoring one hour per week for the past two years from a registered DSF tutor.

Mathematics Intervention:**Reported by Parent:**

- John has been receiving individualised mathematics tutoring one hour per week for the past two years from a registered DSF tutor.

Reported by Teacher:

John has been receiving individualised mathematics tutoring one hour per week for the past two years from a registered DSF tutor.

PAST INTERVENTION SUMMARY:

Six or more months of Tier 2 or higher intervention has been implemented for the following areas: **Reading, Writing, Spelling, and Mathematics.**

GLOBAL SCREENING ASSESSMENT

Global Screening Test Administered:

Date of Administration

**child & adolescent psychprofiler* (CAPP; Langsford, Houghton, & Douglas, 2014)

11/05/2020

CAPP Outline:

The CAPP is a reliable and valid 126 item instrument that utilises three separate screening forms; the Self-Report Form (SRF), Parent-report Form (PRF), and Teacher-report Form (TRF) for the simultaneous screening of 14 of the most prevalent disorders in children and adolescents.

The CAPP has been continually developed over the past 20 years, including validation against large mainstream and clinical samples, as well against other well-known instruments (e.g., Beck, Conners, etc).

The CAPP comprises screening criteria that mirror the symptom count and diagnostic criteria of the *Diagnostic and Statistical Manual of Mental Disorders–Fifth Edition* (DSM-5: American Psychiatric Association: APA, 2013). For example, a positive screen for Attention-Deficit/Hyperactivity Disorder: Predominantly Inattentive Presentation indicates that the symptom count was 6 or more of the 9 DSM-5 Inattentive items.

For more information about the PsychProfiler, please see <https://www.psychprofiler.com>

Disorders included in the CAPP:

Anxiety Disorders:

- ★ Generalised Anxiety Disorder
- ★ Separation Anxiety Disorder

Attention-Deficit/Hyperactivity Disorder:

- ★ Attention-Deficit/Hyperactivity Disorder

Autism Spectrum Disorder:

- ★ Autism Spectrum Disorder

Communication Disorders:

- ★ Language Disorder
- ★ Speech Sound Disorder

Depressive Disorders:

- ★ Persistent Depressive Disorder

Disruptive, Impulse-Control, & Conduct Disorders:

- ★ Conduct Disorder
- ★ Oppositional Defiant Disorder

Feeding and Eating Disorders:

- ★ Anorexia Nervosa
- ★ Bulimia Nervosa

Obsessive-Compulsive and Related Disorders:

- ★ Obsessive-Compulsive Disorder

Specific Learning Disorders:

- ★ Specific Learning Disorder – Reading, Mathematics, and Written Expression

Trauma and Stressor-Related Disorders:

- ★ Posttraumatic Stress Disorder

Global Behavioural Assessment Results:

John self-reported positive screens for:

- Speech Sound Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

John's parents reported positive screens for:

- Attention-Deficit/Hyperactivity Disorder: Combined Presentation
- Language Disorder
- Speech Sound Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

John's teacher reported positive screens for:

- Attention-Deficit/Hyperactivity Disorder: Predominantly Hyperactive/Impulsive Presentation
- Language Disorder
- Oppositional Defiant Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

Please note that any indication of a positive screen on the CAPP does not constitute a formal diagnosis. A positive screen merely indicates that the individual has met sufficient criteria for a disorder to warrant further investigation.

Please refer to the CAPP Report(s) for the individual behaviours which were responsible for the positive screens elicited.

SOCIO-EMOTIONAL ASSESSMENT

Checklist Administered:

(1) Beck Youth Inventories of Emotional and Social Impairment –II

Date of Administration

11/05/2020

BYI-II Overview:

The BYI-II (Beck: BYI-II: 2005) is a reliable and valid self-report instrument that contains 5 subscales pertaining to self-concept, anxiety, depression, anger, and disruptive behaviour.

The inventories are intended for use with children and adolescents between the ages of 7 and 18 years.

BYI-II Results:

BYI Subscales	Raw Score	T-Score	Interpretive Guidelines
Self-Concept	34	42	Lower than Average
Anxiety	26	62	Moderately Elevated
Depression	40	82	Extremely Elevated
Anger	31	65	Moderately Elevated
Disruptive Behaviour	22	66	Moderately Elevated

The BYI results indicate that the areas of **Self-Concept**, **Anxiety**, **Depression**, **Anger**, and **Disruptive Behaviour** warrant further investigation.

Psychometric Tests Administered:

Wechsler Intelligence Scale for Children-Fifth Edition (WISC-V, 2016)

11/05/2020

WISC-V Overview:

The Wechsler Intelligence Scale for Children- Fifth Edition (WISC-V) is an individually administered, comprehensive clinical instrument for assessing cognitive ability of children between the ages of 6 years through to 16 years 11 months.

The WISC-V provides primary index scores that represent intellectual functioning in specified cognitive areas (i.e., Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, and Processing Speed Index), a composite score that represents general intellectual ability (i.e., Full Scale IQ), ancillary index scores that represent the cognitive abilities in different groupings based on clinical needs (e.g., Nonverbal Index, General Ability Index) and complementary index scores that measure additional cognitive abilities related to academic achievement and learning-related issues and disorders (e.g., Naming Speed Index).

The WISC-V has Australian norms and Australian language adaptation and takes approximately 60 minutes for the core subtests.

WISC-V Subtests:

Please see Appendix for full subtest descriptions.

WISC-V Primary Indexes:

The **Verbal Comprehension Index (VCI)** measure's the client's ability to access and apply acquired word knowledge. More specifically the VCI is designed to measure the client's ability to verbalise meaningful concepts, think about verbal information, and express themselves using words.

The **Visual Spatial Index (VSI)** measure's the client's ability to evaluate visual details and understand visual spatial relationships in order to construct geometric designs from a model. This skill requires visual spatial reasoning, integration and synthesis of part-whole relationships, attentiveness to visual detail, and visual-motor integration.

The **Fluid Reasoning Index (FRI)** measure's the client's ability to detect the underlying conceptual relationship among visual objects and use reasoning to identify and apply rules. Identification and application of conceptual relationships in the FRI requires inductive and quantitative reasoning, broad visual intelligence, simultaneous processing, and abstract thinking.

The **Working Memory Index (WMI)** measure's the client's ability to register, maintain, and manipulate visual and auditory information in conscious awareness, which requires attention and concentration, as well as visual and auditory discrimination.

The **Processing Speed Index (PSI)** measure's the client's speed and accuracy of visual identification, decision making, and decision implementation. Performance on the PSI is related to visual scanning, visual discrimination, short-term visual memory, visuomotor coordination, and concentration. The PSI assesses the client's ability to rapidly identify, register, and implement decisions about visual stimuli.

The **Full Scale (FSIQ)** is derived from seven subtests and summarises ability across a diverse set of cognitive functions. This score is typically considered the most representative indicator of general intellectual functioning, unless there is marked variability among the Index Composite Scores (ie 18+ difference between the Indexes). Subtests are drawn from five areas of cognitive ability: verbal comprehension, visual spatial, fluid reasoning, working memory, and processing speed.

WISC-V Ancillary Indexes:

The **Auditory Working Memory Index (AWMI)** is derived from the sum of scaled scores for the Digit Span and Letter-Number Sequencing subtests. These subtests require the client to listen to numbers and letters presented verbally, then recall or sequence them aloud. This index score measures the client's ability to register, maintain, and manipulate verbally presented information.

The **Nonverbal Index (NVI)** is derived from six subtests that do not require verbal responses. This index score can provide a measure of general intellectual functioning that minimises expressive language demands for individuals with special circumstances or clinical needs. Subtests that contribute to the NVI are drawn from four of the five primary cognitive domains (i.e., Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed).

The **General Ability Index (GAI)** is comprised of five subtests that provides an estimate of general intelligence that is less impacted by working memory and processing speed, relative to the FSIQ. The GAI consists of subtests from the verbal comprehension, visual spatial, and fluid reasoning domains.

The **Cognitive Proficiency Index (CPI)** comprises of four subtests, drawn from the working memory and processing speed domains. The CPI measures the client's ability to process cognitive information in the service of learning, problem solving, and higher-order reasoning

WISC-V Qualitative Descriptions:

Standard Score	Percentile	WISC-V-Qualitative Description
<70	<2	Extremely Low
70-79	2-8	Very Low
80-89	9-23	Low Average
90-109	25-73	Average
110-119	75-90	High Average
120-129	91-97	Very High
130+	98+	Extremely High

WISC-V Examiner's Details:

EXAMINER: Dr Shane Langsford

QUALIFICATIONS: Bachelor of Psychology
Bachelor of Education with First Class Honours
Doctor of Philosophy in Educational Psychology

REGISTRATION: AHPRA/PBA Registered Psychologist

WISC-V Test Behaviour:

John had significant difficulty remaining still (e.g. fidgeting) and focussed (e.g. looking around the room) throughout the testing period. He was also observed to "give up" easily as the items increased in difficulty.

John demonstrated articulation error with /th/ sounds (e.g "fwee" for three, "bofe" for both, and "fing" for thing).

WISC-V Test Results:*Age at Testing: 13 years 3 months***Table 1: WISC-V Index Scores**

WISC-V Indexes	Composite Score	Percentile Rank	95% Confidence Interval	Qualitative Description
PRIMARY INDEXES				
Verbal Comprehension Index (VCI)	95	37	87-103	Average
Visual Spatial Index (VSI)	115	84	106-122	High Average
Fluid Reasoning Index (FRI)	115	84	106-122	High Average
Working Memory Index (WMI)	77	6	71-88	Very Low
Processing Speed Index (PSI)	78	7	72-91	Very Low
Full Scale Intelligence Quotient (FSIQ)	96	39	91-102	Average
ANCILLARY INDEXES				
Auditory Working Memory Index (AWMI)	78	7	73-85	Very Low
Nonverbal Index (NVI)	97	42	91-103	Average
General Ability Index (GAI)	105	63	99-111	Average
Cognitive Proficiency Index (CPI)	78	7	72-87	Very Low

*Index scores have a mean Composite Score of 100 (50th percentile) and a standard deviation of 15.**Percentile Rank refers to John's standing among 100 individuals of similar age.**Therefore, a Percentile Rank of 50 indicates that John performed exactly at the average level for his chronological age.**Composite scores are intentionally removed from parent copies of the report as per APS policy***Table 2: WISC-V Primary Index Discrepancy Summaries**

WISC-V Index	Difference	Critical Cutoff	Exceeds .05 Statistical Significance	Base Rate
Verbal Comprehension – Visual Spatial	-20	9.29	Yes	8.0%
Verbal Comprehension – Fluid Reasoning	-20	10.17	Yes	10.3%
Verbal Comprehension – Working Memory	18	10.99	Yes	7.6%
Verbal Comprehension – Processing Speed	17	12.81	Yes	17.2%
Visual Spatial – Fluid Reasoning	0	9.29	No	
Visual Spatial – Working Memory	38	10.18	Yes	1.1%
Visual Spatial – Processing Speed	37	12.12	Yes	1.5%
Fluid Reasoning — Working Memory	38	10.99	Yes	0.0%
Fluid Reasoning – Processing Speed	37	12.81	Yes	0.4%
Working Memory — Processing Speed	-1	13.47	No	50.4%

*Bolding appears where a significant difference between the Indexes has been elicited**Scores referred to as 'Almost' fall within 10% of the critical value for statistical significance**Base rate refers to the clinical significance (vs Ability Sample) - <15% = clinically significant.*

Below is a set of characteristic difficulties relevant to lower ability in each Index. These are generic difficulties and are not provided as an illustration of John's individual difficulties.

Verbal Comprehension weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- Trouble understanding verbal directions and/or instructions. This will be more so with complex language, or when multiple steps are included in an instruction.
- Increased difficulty completing exams that require a large written output (i.e. essays, long answer questions).
- Being seen as 'poor listeners'. These individuals can appear to be easily distracted and inattentive at times, especially when faced with high verbal task demands.
- Difficulty with 'word-based Mathematics problems' –generally these individuals will have adequate Mathematics abilities, but the individual will find it difficult to demonstrate this when the Mathematics questions are buried in text.
- Being stronger at Mathematics, and science, where they can 'show' what they know in ways that are not heavily language based.
- Improved learning from charts, visual materials, diagrams, videos, or hands-on learning demonstrations.
- Difficulty in terms of reading comprehension – they may need to re-read a given text in order to fully understand the meaning.
- Difficulty in understanding abstract concepts, particularly when asked to perform tasks that rely heavily on verbal abstract reasoning.
- Difficulty in understanding social conventions (i.e. what should you do if you find a wallet in a store).

Working Memory weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- Difficulty absorbing teacher's instructions, particularly if they contain more than one step
- Wide ranging difficulties in both Mathematics and reading, both of which are activities that place high demand on working memory ability.
- May show overall lower achievement across classroom activities, due to the impact of working memory weaknesses on efficiency in terms of learning new information. These individuals appear to be slower than peers in terms of learning new skills.
- Difficulty performing mental Mathematics calculations
- Struggling to copy information from the board, both accurately and quickly
- Frequent errors across tasks that involve the individual to recall small amounts of information, while at the same time performing another task.
- Difficulty performing tasks with a number of steps, they may miss out steps or make mistakes in terms of not carefully paying attention to the details.
- Appearing to have a relatively short attention span, they may appear inattentive or distractible.

Processing Speed weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- Difficulty processing large amounts of information, or being able to understand long, complex instructions.
- Poorer performance across timed tasks/exams relative to peers. These individuals need more time to be able to show what they do know.
- Being overall slower to complete tasks in class or for homework
- Being slower at copying information down from the board or writing down what the teacher is saying.
- Written work is very time consuming, it takes these individuals a long time to write down what they know.
- Easy to fatigue; these individuals need to use more cognitive resources to complete the same amount of work as their peers.
- Difficulty following conversations, or keeping track of the plot in books/movies

Table 3: WISC-V Subtest Scaled Scores

Subtests	Scaled Score	Percentile Rank	Age Equivalent
Verbal Comprehension Index			
Similarities	10	50	12:10
Vocabulary	8	25	10:6
*Information	9	37	11:6
*Comprehension	9	37	11:6
Visual Spatial Index			
Block Design	13	84	>16:10
Visual Puzzles	11	61	11:8
Fluid Reasoning Index			
Matrix Reasoning	12	75	>16:10
Figure Weights	11	61	11:8
*Picture Concepts	12	75	>16:10
*Arithmetic			
Working Memory Index			
Digit Span	7	16	8:10
Picture Span	6	9	8:03
*Letter-Number Sequencing	5	5	7:10
Processing Speed Index			
Coding	5	5	8:2
Symbol Search	9	37	11:10

*See Appendix 1 for complete subtest descriptions. * Supplementary Subtest*

Table 4: WISC-V WMI and PSI Subtest Discrepancies From GAI Index Subtest Mean*Please note, the statistics provided in this table are not standard WISC-IV analyses and are provided as a guide only*

Subtest	Subtest Scaled Score	GAI Mean Score	Difference From GAI Mean	Nominal Critical Cutoff	.05 Strength or Weakness
Working Memory					
Digit Span	7	10.8	-3.8	2.50	Weakness
Picture Span	6	10.8	-4.5	2.50	Weakness
* Letter-Number Sequencing	5	10.8	-5.8	2.50	Weakness
Processing Speed					
Coding	5	10.8	-5.8	2.50	Weakness
Symbol Search	9	10.8	-1.8	2.50	

*Scores referred to as 'High' or 'Low' fall within 20% of the critical value for statistical significance***Non-core subtest.*

EDUCATIONAL ASSESSMENT

Educational Achievement Tests Administered:

<i>Tests</i>	<i>Date of Administration</i>
(1) Wechsler Individual Achievement Test-Third Edition-Australian (WIAT-III-Aust)	11/05/2020

WIAT-III Overview:

The WIAT-III^{A&NZ} is an individually administered clinical instrument designed to measure the achievement of students who are in Preschool through to the final year of Secondary School (i.e. Year 12), or ages 4 years 0 months to 50 years 11 months.

The WIAT-III^{A&NZ} consists of a total of 16 subtests used to evaluate listening, speaking, reading, writing, spelling, and mathematics skills.

The WIAT-III^{A&NZ} was standardised on a sample of 1360 Australian and New Zealand students and features comprehensive normative information.

WIAT-III Subtest Descriptions:

Please see Appendix for full subtest descriptions.

WIAT-III Qualitative Descriptions:

Standard Score	WIAT-III-Qualitative Description
≤69	Extremely Low
70-79	Very Low
80-89	Low Average
90-109	Average
110-119	High Average
120-129	Very High
146+	Extremely High

WIAT-III Examiner's Details:

EXAMINER:	Dr Shane Langsford
QUALIFICATIONS:	Bachelor of Psychology Bachelor of Education with First Class Honours Doctor of Philosophy in Educational Psychology
REGISTRATION:	AHPRA/PBA Registered Psychologist

Test Behaviour:

John was observed to reverse numerals and letters.

WIAT-III Results:

Age Level at Testing: 13 years 3 months

Grade Level at Testing: 9

Table 1: WIAT-III Summary Statistics

WIAT-III Subtest	Standard Score	95% Confidence Interval	Percentile	Year / Grade Equivalent	Age Equivalent	Qualitative Description	≤ 6 th %ile
READING							
Reading Comprehension	94	81-107	34	3.3	8:8	Average	
Word Reading	89	85-93	23	7.2	7:4	Low Average	
- Word Reading Speed			50				
Pseudoword Decoding	89	85-93	23	6.1	7:0	Low Average	
- Pseudoword Decoding Speed			50				
Oral Reading Fluency	76	69-83	5	3.4	8:8	Very Low	Yes
- Oral Reading Accuracy	84	72-96	14	4.2	9:4	Low Average	
- Oral Reading Rate	74	67-81	4	2.4	8:0	Very Low	Yes
Reading Comprehension	95	90-99	39	5.9	7:9	Average	
Total Reading Composite	85	81-89	16			Low Average	
Basic Reading Composite	91	88-94	27			Average	
Reading Comp. & Fluency C	81	72-90	10			Low Average	
MATHEMATICS							
Numerical Operations	103	94-112	58	8.4	9:0	Average	
Maths Reasoning	100	92-110	50	8.2	8:9	Average	
Maths Fluency	92	86-98	30			Average	
- Addition	96	85-107	39	5.2	10:8	Average	
- Subtraction	99	89-109	47	6.1	11:0	Average	
- Multiplication	83	73-93	13	3.4	8:8	Low average	
Mathematics Composite	95	90-100	37			Average	
WRITTEN LANGUAGE							
Alphabet Writing Fluency	97	81-113	42	8.2	8:4	Average	
Sentence Composition	107	97-117	68	84	9:8	Average	
Essay Composition	75	64-86	5	41	<8:0	Very Low	Yes
- Word Count	86		18			Low Average	
- Theme Dev. and Text Org.	68		2			Extremely Low	Yes
- Grammar and Mechanics	82		12			Low Average	
Spelling	83	76-90	13	3.4	6:8	Low Average	
Written Language Comp.	87	82-92	19			Low Average	

Subtest scores have a mean Standard Score of 100 (50th percentile) and a standard deviation of 15.

Percentile Rank refers to John's standing among 100 individuals of similar age.

Therefore, a Percentile Rank of 50 indicates that John performed exactly at the average level for his chronological age.

Age Norms have been used in the above table

The 6th percentile or below equates to those that fall one and a half or more standard deviations below the mean

Age and Grade equivalents are based on a median RAW score and must be interpreted with caution

as they don't always make sense. Standard or normalised scores are better than raw scores

*Average Word Reading Speed and Pseudoword Decoding Speed is considered normal for all level of cognitive ability

SUMMARY OF DSM-5 SPECIFIC LEARNING DISORDER CRITERIA

A. Difficulties learning and using academic skills, as indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months, despite the provision of interventions that target those difficulties:

1. Inaccurate or slow and effortful word reading (e.g., reads single words aloud incorrectly or slowly and hesitantly, frequently guesses words, has difficulty sounding out words).
2. Difficulty understanding the meaning of what is read (e.g., may read text accurately but not understand the sequence, relationship, inferences, or deeper meanings of what is read).
3. Difficulties with spelling (e.g., may add, omit, or substitute vowels or consonants).
4. Difficulties with written expression (e.g., makes multiple grammatical or punctuation errors within sentences; employs poor paragraph organisation; written expression of ideas lacks clarity.)
5. Difficulties mastering number sense, number facts or calculation (e.g., has poor understanding of numbers, their magnitude, and relationships; counts on fingers to add single-digit numbers instead of recalling the math fact as peers do; gets lost in the midst of arithmetic computation and may switch procedures).
6. Difficulties with mathematical reasoning (e.g., has severe difficulty applying mathematical concepts, facts, or procedures to solve quantitative problems).

Six or more months of Tier 2 or higher intervention has been implemented for the following areas: **Reading, Writing, Spelling, and Mathematics.**

This criterion is rated as having been Met.

B. The affected academic skills are substantially and quantifiably below (i.e., <78 ; $\leq 6^{\text{th}}$ percentile) those expected for the individual's chronological age, and cause significant interference with academic or occupational performance, or with activities of daily living, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessments. For individuals age 17 years and older, a documented history of impairing learning difficulties may be substituted for standardised assessments.

This criterion is rated as having been Met.

C. The learning difficulties begin during school-age years but may not become fully manifest until the demands for those affected academic skills exceed the individual's limited capacities (e.g., as in timed tests, reading or writing lengthy complex reports for a tight deadline, excessively heavy academic loads).

This criterion is rated as having been Met.

D. The learning difficulties are not better accounted for by intellectual disabilities, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language or academic instruction, or inadequate educational instruction.

This criterion is rated as having been Met.

E. Severity Level:

Severity Level	Qualitative Information
Mild	Some difficulties learning skills in one or two academic domains, but mild enough severity that the individual may be able to compensate or function well when provided with appropriate accommodations or support services, especially during the school years.
Moderate	Marked difficulties learning skills in one or more academic domains, so that the individual is unlikely to become proficient without some intervals of intensive specialized teaching during the school years. Some accommodations or supportive services at least part of the day at school, in the workplace, or at home may be needed to complete all activities efficiently
Severe	Severe difficulties learning skills, affecting several academic domains, so that the individual is unlikely to learn those skills without ongoing intensive individualized and specialized teaching for most of the school years. Even with an array of appropriate accommodations or services at home, at school, or in the workplace, the individual may not be able to complete all activities efficiently.

HANDWRITING SPEED TEST

Handwriting Speed Test Administered:

(1) The Handwriting Speed Test (Wallen, Bonney, & Lennox, 1996)

Date of Administration
18/09/2018

HWST Overview:

The Handwriting Speed Test is a three-minute standardised assessment of a child's speed of handwriting.

HWST Categories:

The authors provide the following category cut-offs as a measure of handwriting speed ability.

<i>Scaled Score</i>	<i>Category</i>
17-19	Superior Performance
14-16	Above Average Handwriting Speed
7-13	Average
4-6	Handwriting Speed Impaired
1-3	Handwriting Speed Significantly Impaired

HWST Results:

John was able to write 222 letters during the three-minute time period; which equates to a speed of 74 letters per minute.

This result (Scaled Score = 6; 9th percentile) indicates John falls within the *Handwriting Speed Impaired* category.

PHONOLOGICAL PROCESSING ASSESSMENT

Test Administered:

Test
Comprehensive Test of Phonological Processing (CTOPP-II)

Date of Administration
23/09/2018

CTOPP-II Overview:

The CTOPP-II is an individually administered assessment battery that measures the aspects of phonological awareness, phonological memory, and rapid naming. A deficit in one or more of these kinds of phonological processing abilities is viewed as the most common cause of learning disabilities in general, and of reading disabilities in particular. The CTOPP-II can be used for individuals aged 5 years 0 months to 24 years 11 months.

CTOPP-II Subtests and Composites:

Table 1: CTOPP-II Subtests

Elision (EL)	This 34-item subtest measures the extent to which an individual can say a word, then say what is left after dropping out designated sounds.
Blending Words (BW)	This 33-item subtest measures an individual's ability to combine sounds to form words.
Phoneme Isolation (PI)	This 32-item subtest measures the extent to which an individual can isolate different phonemes within individual words.
Memory for Digits (MD)	This 28-item subtest measures the extent to which an individual can repeat a series of numbers ranging in length from two to eight digits.
Nonword Repetition (NR)	This 30-item subtest measures an individual's ability to repeat nonwords that range in length from 3 to 15 seconds.
Rapid Digit Naming (RD)	This 36-item subtest measures the speed with which an individual can name the numbers on two pages.
Rapid Letter Naming (RL)	This 36-item subtest measures the speed with which an individual can name the letters on two pages.

The six subtests from the CTOPP-II are combined to form three Composites that provide information about the three key areas of phonological processing: Phonological Awareness, Phonological Memory and Rapid Naming.

Table 2: CTOPP-II Composites

Phonological Awareness (PACS)	Measures an individual's phonological awareness – awareness of and access to the phonological structure of oral language.
Phonological Memory (PMCS)	Measures the examinee's ability to code information phonologically for temporary storage in working memory or short-term memory.
Rapid Naming (RNCS)	Measures the examinee's efficient retrieval or phonological information from long-term or permanent memory, as well as the examinee's ability to execute a sequence of operations quickly and repeatedly.

CTOPP-II Results:

Grade Level at Testing: 9
 Age Level at Testing: 13 years 3 months

Table 3: CTOPP-II Summary Statistics

CTOPP-II Subtest	Scaled Score	Percentile	Age Equivalent	Grade Equivalent
Elision	8	25	7:6	2:4
Blending Words	8	25	8:9	3:7
Phoneme Isolation	7	16	10:6	5:4
Memory for Digits	8	25	7:6	2:4
Nonword Repetition	8	25	8:9	3:7
Rapid Digit Naming	7	16	10:6	5:4
Rapid Letter Naming	5	5	9:9	4:7

Subtest scores have a mean Standard Score of 10 (50th percentile) and a standard deviation of 3
 Percentile Rank refers to John's standing among 100 children of similar age. Therefore, a Percentile Rank of 50 indicates that John performed exactly at the average level for his chronological age.

Table 4: CTOPP-II Composite Results

Composite	Composite Score	Percentile Rank	Classification
Phonological Awareness	88	21	Below Average
Phonological Memory	88	21	Below Average
Rapid Naming	76	5	Poor

Composite scores have a mean Standard Score of 100 (50th percentile) and a standard deviation of 15
 Percentile Rank refers to John's standing among 100 children of similar age. Therefore, a Percentile Rank of 50 indicates that John performed exactly at the average level for his chronological age.

Table 5: WISC-V vs CTOPP-II Comparative Results

Composite	Percentile Rank	Classification
WISC-V		
WISC-V FSIQ	63	Average
CTOPP-II		
CTOPP-II Phonological Awareness	21	Below Average
CTOPP-II Phonological Memory	21	Below Average
CTOPP-II Rapid Naming	5	Poor

Below is a set of characteristic difficulties relevant to lower ability in each Index. These are generic difficulties and are not provided as an illustration of John's individual difficulties.

Phonological Awareness weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- Children who have difficulty with phonological awareness will often be unable to recognise or isolate the individual sounds in a word, recognise similarities between words (as in rhyming words), or be able to identify the number of sounds in a word. These deficits can affect all areas of language including reading, writing, and understanding of spoken language.
- If a child lacks phonemic awareness, they will have difficulty learning the relationship between letters and the sounds they represent in words, as well as applying those letter/sound correspondences to help them “sound out” unknown words.
- Acquiring phonemic awareness is important because it is the foundation for spelling and word recognition skills.
- Auditory/sound blending skills (e.g. What word would you have if you put these sounds together? /s/ /a/ /t/).
- Trouble understanding spelling rules and conventions.
- Have trouble remembering new words and as a consequence have a weak vocabulary and/or word retrieval difficulty.
- Problems with reading fluency.

Phonological Memory weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- Difficulty learning new written and spoken vocabulary.
- Difficulty remembering and therefore following complex instructions.
- Impaired ability to comprehend complex written and spoken sentences.
- Difficulty recalling factual information in written texts and lectures.
- Difficulty decoding unfamiliar words (i.e. sounding and blending words especially complex words).
- Poor concentration or attention (e.g. may daydream or distract others if they fail to recall/process instructions).
- Difficulty with rote sequences such as months of the year, the alphabet, times tables, phone numbers etc.
- Difficulty holding speech sounds in memory long enough to determine how to spell and read longer words.

Rapid Naming weaknesses can cause difficulty learning in the classroom and performing to ability in exams by:

- In the classroom, the decoding and naming of numbers, letters and words is practiced becoming automatic in order to develop speed of processing, efficiency or working memory and fluency and accuracy in speaking, reading and writing.
- Individuals who score poorly commonly have problems with reading fluency.
- Lack of automaticity with quickly and accurately identifying letter names/sounds, numbers, phonic patterns (e.g. ‘ch’ and ‘th’) and whole words (i.e. sight vocabulary).
- This can affect a child’s ability to efficiently decode/encode unfamiliar words.
- It also affects the ability to efficiently recall/retrieve the names of objects, colours and even people’s names.
- Slow naming speed can affect how well an individual will be able to integrate and organise ideas in their head, before these ideas are even put into words.
- Becomes more apparent as greater demands are placed on an individual’s ability to retrieve information under timed conditions.

Summary of CTOPP-II results:

John's CTOPP-II results indicate that he scored at the **21st percentile** for Phonological Awareness, **21st percentile** for Phonological Memory, and at the **5th percentile** for Rapid Naming.

Contrasted with his comparative WISC-V result (GAI = 63rd percentile), this would suggest that John is having difficulty in all three phonological processing composites.

A deficit in **Phonological Awareness** is viewed as the hallmark of reading disability or dyslexia. Poor phonological awareness is associated with poor reading for both individuals whose poor reading levels are discrepant from their IQs and for individuals whose poor reading levels are consistent with their IQs.

A deficit in **Phonological Memory** does not inevitably lead to poor reading of familiar material but is more likely to impair decoding of new words, particularly words that are long enough to decode bit by bit, as a means of storing intermediate sounds. It is likely to impair both listening and reading comprehension for more complex sentences

Individuals who score poorly in **Rapid Naming** commonly have problems with reading fluency.

OBSERVATIONS AND CLINICAL PRESENTATION

General Appearance:

- John's physical appearance was neat

Rapport:

- The examiner was able to establish good rapport with John

Psychomotor Behaviour:

- John's coordination of movements and posture were observed to be normal

Mood/Affect:

- Was observed as having a normal affect which remained consistent throughout the assessment

Speech:

- No speech problems were observed

Cognitive:

- No obvious behaviours were observed that suggested cognitive deficiencies

Attention:

- John put in an appropriate amount of effort throughout the assessment

SUMMARY

REASON FOR REFERRAL:

John was referred to Psychological and Educational Consultancy Services (PECS) by Dr Jane Brown (Consultant Paediatrician) for a *Comprehensive Psychological Assessment* and indication of whether the results are reflective of an individual with a Specific Learning Disorder.

CURRENT CONCERNS:

From a presented list, John's parents identified concerns in the following areas:

- Attention
- Learning
- Spelling
- Reading
- Written language
- Suspected hyperactivity
- Memory

ACADEMIC AREAS:

Presented below are parent estimates of John's achievement in the main academic areas:

Maths:	<input type="checkbox"/> Well Below Average	<input type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input checked="" type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Reading:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Writing:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Spelling:	<input type="checkbox"/> Well Below Average	<input checked="" type="checkbox"/> Below Average	<input type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average
Language:	<input type="checkbox"/> Well Below Average	<input type="checkbox"/> Below Average	<input checked="" type="checkbox"/> Average	<input type="checkbox"/> Above Average	<input type="checkbox"/> Well Above Average

PAST INTERVENTION SUMMARY:

Six or more months of Tier 2 or higher intervention has been implemented for the following areas: **Reading, Writing, Spelling, and Mathematics.**

GLOBAL SCREENING ASSESSMENT (PsychProfiler):

John self-reported positive screens for:

- Speech Sound Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

John's parents reported positive screens for:

- Attention-Deficit/Hyperactivity Disorder: Combined Presentation
- Language Disorder
- Speech Sound Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

John's teacher reported positive screens for:

- Attention-Deficit/Hyperactivity Disorder: Predominantly Hyperactive/Impulsive Presentation
- Language Disorder
- Oppositional Defiant Disorder
- Specific Learning Disorder – with Impairment in Reading
- Specific Learning Disorder – with Impairment in Written Expression

SOCIO-EMOTIONAL ASSESSMENT (Beck Youth Inventory):

BYI Subscales	Raw Score	T-Score	Interpretive Guidelines
Self-Concept	34	42	Lower than Average
Anxiety	26	62	Moderately Elevated
Depression	40	82	Extremely Elevated
Anger	31	65	Moderately Elevated
Disruptive Behaviour	22	66	Moderately Elevated

The BYI results indicate that the areas of **Self-Concept**, **Anxiety**, **Depression**, **Anger**, and **Disruptive Behaviour** warrant further investigation.

COGNITIVE ASSESSMENT (WISC-V):

WISC-V Indexes	Composite Score	Percentile Rank	95% Confidence Interval	Qualitative Description
PRIMARY INDEXES				
Verbal Comprehension Index (VCI)	95	37	87-103	Average
Visual Spatial Index (VSI)	115	84	106-122	High Average
Fluid Reasoning Index (FRI)	115	84	106-122	High Average
Working Memory Index (WMI)	77	6	71-88	Very Low
Processing Speed Index (PSI)	78	7	72-91	Very Low
Full Scale Intelligence Quotient (FSIQ)	96	39	91-102	Average
ANCILLARY INDEXES				
Auditory Working Memory Index (AWMI)	78	7	73-85	Very Low
Nonverbal Index (NVI)	97	42	91-103	Average
General Ability Index (GAI)	105	63	99-111	Average
Cognitive Proficiency Index (CPI)	78	7	72-87	Very Low

EDUCATIONAL BATTERY ASSESSMENT (WIAT-III):

WIAT-III Subtest	Standard Score	95% Confidence Interval	Percentile	Year / Grade Equivalent	Age Equivalent	Qualitative Description	≤ 6 th %ile
READING							
Reading Comprehension	94	81-107	34	3.3	8:8	Average	
Word Reading	89	85-93	23	7.2	7:4	Low Average	
- Word Reading Speed			50				
Pseudoword Decoding	89	85-93	23	6.1	7:0	Low Average	
- Pseudoword Decoding Speed			50				
Oral Reading Fluency	76	69-83	5	3.4	8:8	Very Low	Yes
- Oral Reading Accuracy	84	72-96	14	4.2	9:4	Low Average	
- Oral Reading Rate	74	67-81	4	2.4	8:0	Very Low	Yes
Reading Comprehension	95	90-99	39	5.9	7:9	Average	
Total Reading Composite	85	81-89	16			Low Average	
Basic Reading Composite	91	88-94	27			Average	
Reading Comp. & Fluency C	81	72-90	10			Low Average	
MATHEMATICS							
Numerical Operations	103	94-112	58	8.4	9:0	Average	
Maths Reasoning	100	92-110	50	8.2	8:9	Average	
Maths Fluency	92	86-98	30			Average	
- Addition	96	85-107	39	5.2	10:8	Average	
- Subtraction	99	89-109	47	6.1	11:0	Average	
- Multiplication	83	73-93	13	3.4	8:8	Low average	
Mathematics Composite	95	90-100	37			Average	
WRITTEN LANGUAGE							
Alphabet Writing Fluency	97	81-113	42	8.2	8:4	Average	
Sentence Composition	107	97-117	68	84	9:8	Average	
Essay Composition	75	64-86	5	41	<8:0	Very Low	Yes
- Word Count	86		18			Low Average	
- Theme Dev. and Text Org.	68		2			Extremely Low	Yes
- Grammar and Mechanics	82		12			Low Average	
Spelling	83	76-90	13	3.4	6:8	Low Average	
Written Language Comp.	87	82-92	19			Low Average	

DSM-5 SPECIFIC LEARNING DISORDER OVERALL SUMMARY:

- A. Difficulties learning and using academic skills, as indicated by the presence of at least one of the following symptoms that have persisted for at least 6 months, despite the provision of interventions that target those difficulties:

Six or more months of Tier 2 or higher intervention has been implemented for the following areas: **Reading, Writing, Spelling, and Mathematics.**

This criterion is rated as having been Met.

- B. The affected academic skills are substantially and quantifiably below (i.e., <78 ; $\leq 6^{\text{th}}$ percentile) those expected for the individual's chronological age, and cause significant interference with academic or occupational performance, or with activities of daily living, as confirmed by individually administered standardized achievement measures and comprehensive clinical assessments. For individuals age 17 years and older, a documented history of impairing learning difficulties may be substituted for standardised assessments.

This criterion is rated as having been Met.

- C. The learning difficulties begin during school-age years but may not become fully manifest until the demands for those affected academic skills exceed the individual's limited capacities (e.g., as in timed tests, reading or writing lengthy complex reports for a tight deadline, excessively heavy academic loads).

This criterion is rated as having been Met.

- D. The learning difficulties are not better accounted for by intellectual disabilities, uncorrected visual or auditory acuity, other mental or neurological disorders, psychosocial adversity, lack of proficiency in the language or academic instruction, or inadequate educational instruction.

This criterion is rated as having been Met.

E. Severity Level:

Severity Level	Qualitative Information
Mild	Some difficulties learning skills in one or two academic domains, but mild enough severity that the individual may be able to compensate or function well when provided with appropriate accommodations or support services, especially during the school years.
Moderate	Marked difficulties learning skills in one or more academic domains, so that the individual is unlikely to become proficient without some intervals of intensive specialized teaching during the school years. Some accommodations or supportive services at least part of the day at school, in the workplace, or at home may be needed to complete all activities efficiently
Severe	Severe difficulties learning skills, affecting several academic domains, so that the individual is unlikely to learn those skills without ongoing intensive individualized and specialized teaching for most of the school years. Even with an array of appropriate accommodations or services at home, at school, or in the workplace, the individual may not be able to complete all activities efficiently.

HANDWRITING SPEED TEST:

John was able to write 222 letters during the three-minute time period; which equates to a speed of 74 letters per minute.

This result (Scaled Score = 6; 9th percentile) indicates John falls within the *Handwriting Speed Impaired* category.

PHONOLOGICAL PROCESSING ASSESSMENT:

John's CTOPP-II results indicate that he scored at the **21st percentile** for Phonological Awareness, **21st percentile** for Phonological Memory, and at the **5th percentile** for Rapid Naming.

Contrasted with his comparative WISC-V result (GAI= 63rd percentile), this would suggest that John is having difficulty in all three phonological processing composites.

A deficit in **Phonological Awareness** is viewed as the hallmark of reading disability or dyslexia. Poor phonological awareness is associated with poor reading for both individuals whose poor reading levels are discrepant from their IQs and for individuals whose poor reading levels are consistent with their IQs.

A deficit in **Phonological Memory** does not inevitably lead to poor reading of familiar material but is more likely to impair decoding of new words, particularly words that are long enough to decode bit by bit, as a means of storing intermediate sounds. It is likely to impair both listening and reading comprehension for more complex sentences

Individuals who score poorly in **Rapid Naming** commonly have problems with reading fluency.

CONCLUSION

SPECIFIC LEARNING DISORDERS:

When investigating the possibility of the presence of a Specific Learning Disorder, PECS aligns itself closely with the DSM-5 (see Appendix 1) and uses a best-practice approach which combines the clinical synthesis of background information and past testing, with a cross-battery assessment comprising the key elements of the major theoretical models; namely, Low Achievement model, Intra-Individual Differences model, Response to Intervention (RTI) model and Ability-Achievement Discrepancy (AAD) model.

Please note, An AAD model approach (i.e., Intellectual Ability versus Educational Achievement) is still incorporated into the DSM-5 as highlighted on p69 where it states, “Specific Learning Disorder may also occur in individuals identified as intellectually ‘gifted’. These individuals may be able to sustain apparently adequate academic functioning by using compensatory strategies, extraordinarily high effort, or support, until the learning demands or assessment procedures (e.g., timed tests) pose barriers to their demonstrating their learning or accomplishing their tasks”.

Although the above quoted DSM-5 information refers only to the “intellectually gifted” cohort and their ability to sustain “adequate academic functioning”, experienced clinicians feel it is judicious to also adopt this reasoning/sentiment/philosophy more broadly and also include other individuals who are intelligent (e.g., at least 1 standard deviation above the mean), yet do not show gifted results across every Index as it is almost impossible for an individual with a SLD to achieve gifted scores across all of the main intelligence indices.

The ability to take employ this AAD Model approach is also highlighted in the DSM-5 SLD Fact Sheet (see Appendix 1) which states: “Because of the changes in the DSM-5, clinicians will be able to make this diagnosis by identifying whether patients are unable to perform academically at a level appropriate to their intelligence and age”.

PECS aligns itself closely with the DSM-5 as this is the classification system that the educational organisations in Western Australia (e.g., Department of Education, School Curriculum Standards Authority, Catholic Education Office, Association of Independent Schools, etc) have chosen to adopt.

The DSM-5 Neurodevelopmental Work Group, who were responsible for the decision to use the term Specific Learning Disorder (SLD) in the DSM-5, “concluded that the many definitions of dyslexia and dyscalculia meant those terms would not be useful as disorder names or in the diagnostic criteria”.

PECS therefore only uses the term Specific Learning Disorder throughout this report. Please see the Appendix for the multiple definitions of Dyslexia, Dyscalculia, and Dysgraphia, but please be aware, often the various terms are interchangeable with an SLD in the respective area and are referring to the exact same thing.

In simplistic terms, Dyslexia=a SLD in Reading; Dyscalculia=a SLD in Mathematics; and Dysgraphia=a SLD in Writing.

John meets the DSM-5 criteria for a **diagnosis** of a **Specific Learning Disorder – with impairment in Reading** (with impairment in Word reading accuracy; Reading rate or fluency) and **Written Expression** (with impairment in Clarity or organisation of written expression).

The level of severity is deemed to be **Moderate**.

DEPRESSION:

The self-report Beck Youth Inventory results indicate depression warrants further investigation

ANXIETY:

The self-report Beck Youth Inventory results indicate anxiety warrants further investigation

ADHD:

John's PsychProfiler results and cognitive profile (i.e. depreciated Working Memory, Processing Speed, Auditory Working Memory, and Cognitive Proficiency) suggest ADHD is a possibility and warrants further investigation/consideration by Dr Brown.

Please note, as ADHD is a neurochemical disorder often requiring psychostimulant medication, it is traditionally diagnosed by a Medical Specialist (e.g., Paediatrician, Psychiatrist or Clinical Neurologist). Therefore, if an individual's cognitive and/or behavioural results suggest that ADHD is a possibility, it is deemed appropriate of PECS to recommend that the appropriate Medical Specialist be consulted for their expert opinion. PECS does not make the recommendation to see a Medical Specialist on the basis that they believe the individual has ADHD, merely that it is a possibility.

Please note that a GP referral is required to see a Medical Specialist.

RECOMMENDATIONS

Please note, PECS does not provide micro-strategies (e.g., sit student at front of classroom, etc) as part of their recommendations. PECS's provides recommendations on what further assessment is required, what intervention is necessary, and who is the most appropriate to provide the assessment/intervention recommended.

PAEDIATRIC INVOLVEMENT:

- (1) John should once again be seen by Dr Brown now that this new information is available for incorporation into his paediatric assessment.

SCHOOL INVOLVEMENT:

*These results confirm that John has a **Specific Learning Disorder – With Impairment in Reading and Written Expression**.*

*For children with Specific Learning Disorders to be successful at school, they require two areas of support, **remediation**, and **accommodation**.*

***Remediation** involves direct instruction in skills by a specialist teacher and **accommodation** involves adaptations and modifications of curriculum and instructional practices.*

- (1) A case-conference involving John's parents and the key school personnel should be held to discuss John's individual learning requirements.
- (2) John should continue to undergo individualised, intensive, and targeted evidence-based remediation in reading, writing, mathematics, and spelling as part of an in-school programme or with an external private tutor/specialist.
- (3) In light of these new assessment results, a Documented Plan/Curriculum Adjustment Plan should be initiated / amended by John's teachers in an attempt to maximise John's access to the curriculum.
- (4) On-going case management should be carried out by the school, and at the school's discretion, appropriate accommodations and special examination arrangements (as per School Curriculum and Standards Authority guidelines) be granted to John for time-restricted tasks.
- (5) If deemed necessary by the school, at the time of his WACE examinations, an application should be made to the School Curriculum and Standards Authority for Special Examination Arrangements.

PSYCHOLOGICAL INVOLVEMENT:

- (1) John would benefit from on-going counselling given the levels of Self-Concept, Anxiety, Depression, Anger, and Disruptive Behaviour being reported.
- (2) Another cognitive and educational test will be required to be administered closer to his WACE examinations to satisfy School Curriculum and Standards Authority requirements (if applicable).

EDUCATIONAL REMEDIATION:

- (1) John would benefit from specialist reading, writing, spelling, mathematics, and language tutoring from a local specialist tutor or one of the following multi-site places:

Dyslexia SPELD Foundation - Literacy and Clinical Services:

Head Office: 10 Broome Street, SOUTH PERTH WA 6051

(08) 9217 2500

www.dsf.net.au

DSF also has literacy clinics in Albany, Mt Hawthorn, and East Victoria Park: see www.dsf-literacyclinic.com.au

Albany (Earl Street):	(08) 9842 2594	albany@dsf.net.au
Mt Hawthorn (The Mezz):	(08) 9443 8323	mezz@dsf.net.au
East Victoria Park (The Park):	(08) 9470 4140	park@dsf.net.au

DSF also has over 100 tutors across Western Australia, and online tutoring is also available.

To access tutors in your postcode area, you must be a member (\$75 per annum) and register at www.dsf.net.au/request-a-tutor
Tutoring is approximately \$65-\$80 per hour. Many of their tutors also provide mathematics tuition.

Kip McGrath Education Centres:

Offers tutoring in reading, spelling, comprehension, English and Mathematics for Kindergarten through to Year 12.

There are Centres located in Balcatta, Booragoon, Bunbury, Busselton, Ellenbrook, Geraldton, Gosnells, Jandakot, Joondalup, Karratha, Margaret River, Mundaring, North Perth, Victoria Park, and Willetton.

In addition to the Centres, face-to face real-time online tutoring at home is also available via webcam.

Education Centres: www.kipmcgrath.com.au

Online Tutoring: www.kiponline.com.au

Reading for Sure:

Head Office: 67 Oates Street Carlisle WA 6101

(08) 9355 3129

www.readingforsure.com.au

info@readingforsure.com.au

Reading for Sure is for all ages and offers one-to-one tutoring in reading, spelling, and writing.

There are tutors located in Carlisle, Doubleview, Helena Valley, Leeming, Mindarie, Kalamunda, and Mundaring.

Carlisle:	Lynne	0429 161 918
Doubleview:	Wendy	(08) 9244 7195
Helena Valley:	Anne	0418 620 548
Kalamunda:	Sandra	(08) 9257 2795
Leeming:	Marie	(08) 9313 5604
Mindarie	Cynthia	0410 523 173
Mundaring:	Rochelle	0439 922 751

Number Works' n Words Subiaco:

Lower Level Forest Centre Building

14 – 16 Rowland St, SUBIACO WA 6008

(08) 9388 3727

subiaco@numberworks.com

www.numberworks.com/au

Offers primary and secondary school tuition for students aged between 5 and 16 years in English and Mathematics.

ACES: Academic Clinics for Exceptional Students

Suite 5, 4 Guger Street, CLAREMONT WA 6008

(08) 9383 4812

info@aceseducation.org.au

www.aceseducation.org.au

*Offers primary and secondary school literacy and numeracy. tuition for students aged between 7 and 18 years.
Sessions can be at the clinic or via online video-streaming. Fees are approximately \$70-75 per session.*

SPEECH PATHOLOGIST INVOLVEMENT:

- (1) A current speech and language assessment is recommended. This formal speech and language assessment would help to pinpoint John's language weakness and ensure more targeted intervention.

See Appendix for information on Speech Sound Developmental Norms.

For other developmental speech sound norms tables, see:

<http://www.childdevelopment.com.au/home/197>

https://smartandstatic.com/speechcare/files/speech_norms.pdf

- (2) For assistance with locating a Speech Pathologist in their local area, John's parents may wish to utilise the "Find a Speech Pathologist" function on the Private Speech Pathologists Association of WA (PSPAWA) website.

www.pspawa.com.au/find-a-speech-pathologist

Alternatively, the parents may wish to contact:

Bubbles Speech Pathology

Unit 1 / 100 Walters Drive OSBORNE PARK WA 6017

(08) 6111 1365

www.bubbles-speech.com.au

Bubbles Speech Pathology (BSP) provides speech pathology assistance to individuals of all ages. From a very early age, and through the pre-school years, BSP focuses on speech and language development, fluency (stuttering) and voice difficulties; and into the early primary school years, they assist with language and literacy.

or

Ms Jenny Baker

Principal Speech Pathologist

Fremantle Speech Pathology Services

Address: Unit 1 / 14 Cockburn Road HAMILTON HILL 6008

(08) 9433 4595

freospeech@westnet.com.au

www.freospeech.biz

Language, Speech & Learning Services assist to individuals and adolescents to develop their communication and learning and provide literacy services for individuals in Pre-primary through to Year 12.

Mr Tobias Hancock

Speech Pathologist

The Hub

1/94 Mandurah Terrace Mandurah WA 6210

08 9557 5942

toby@thehubwa.com.au

www.thehubwa.com.au

HEALTH & WELL-BEING:

- (1) John needs to continue/implement regular exercise and maintain a healthy diet.

Please note, the above is a generic recommendation that should be followed by all and is not a recommendation specific to John due to any of his results or reported behaviours.

VISION:

- (1) A current vision test by a Behavioural/Developmental Optometrist is recommended due to previous testing being over three years ago. and also concerns with eyesight/eye movement reported.

Behavioural Optometrist/Developmental Optometrists test not just eye health and vision but also a whole range of other areas, such as fusion, stereopsis, convergence, eye tracking, focus, suppression, colour vision, eye-teaming, eye movement pursuits/saccades, and visual perception.

Difficulties in any of these areas can lead to underperformance in the classroom, difficulties completing homework/study, and/or reading and writing difficulties.

John's parents may wish to access the Australasian College of Behavioural Optometrists website (www.acbo.org.au) for assistance with locating a Behavioural Optometrist.

Alternatively, a small cross-section from around the Perth Metropolitan area is provided below:

Bassendean:	(08) 9377 2811	www.bassendeanoptical.com.au
Karrinyup:	(08) 9445 1499	www.visionwest.com.au
Leederville	(08) 9242 2342	www.eyesonoxford.com.au
Leeming:	(08) 9332 7222	www.bullcreekoftometrist.com.au
O'Connor:	(08) 9314 2206	www.visioncarecentre.com.au
Wembley:	(08) 9387 8101	www.thefocalpointoptometrist.com.au

HEARING:

- (1) A current hearing test is recommended due to previous testing being over three years ago.

The below places have Paediatric Audiologists who specialise in diagnosing hearing loss and listening difficulties in children and adolescents.

Duncraig:	www.kidshear.com.au
Hamilton Hill:	www.earscience.org.au
Nedlands:	www.pamgabriels.com.au/
Padbury:	www.earscience.org.au
Subiaco:	www.earscience.org.au
Subiaco:	www.kidshear.com.au

Please note, Kids Hear Diagnostic Audiology in Duncraig and Subiaco is affiliated with the Perth ENT Centre. Therefore, Medicare rebates are applicable if you have been referred there by a GP.

Dr Shane Langsford
Managing Director -PECS
Registered Psychologist

Date of Report

APS College of Educational & Developmental Psychologists Academic Member

This report is a *Professional Report* and is not to be circulated without written permission from the author.



Specific Learning Disorder

The upcoming fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) takes a different approach to learning disorders than previous editions of the manual by broadening the category to increase diagnostic accuracy and effectively target care. Specific learning disorder is now a single, overall diagnosis, incorporating deficits that impact academic achievement. Rather than limiting learning disorders to diagnoses particular to reading, mathematics and written expression, the criteria describe shortcomings in general academic skills and provide detailed specifiers for the areas of reading, mathematics, and written expression.

Characteristics of Specific Learning Disorder

Specific learning disorder is diagnosed through a clinical review of the individual's developmental, medical, educational, and family history, reports of test scores and teacher observations, and response to academic interventions. The diagnosis requires persistent difficulties in reading, writing, arithmetic, or mathematical reasoning skills during formal years of schooling. Symptoms may include inaccurate or slow and effortful reading, poor written expression that lacks clarity, difficulties remembering number facts, or inaccurate mathematical reasoning.

Current academic skills must be well below the average range of scores in culturally and linguistically appropriate tests of reading, writing, or mathematics. The individual's difficulties must not be better explained by developmental, neurological, sensory (vision or hearing), or motor disorders and must significantly interfere with academic achievement, occupational performance, or activities of daily living.

Because of the changes in DSM-5, clinicians will be able to make this diagnosis by identifying whether patients are unable to perform academically at a level appropriate to their intelligence and age. After a diagnosis, clinicians can provide greater detail into the type of deficit(s) that an individual has through the designated specifiers. Just as in DSM-IV, dyslexia will be included in the descriptive text of specific learning disorder. The DSM-5 Neurodevelopmental Work Group concluded that the many definitions of dyslexia and dyscalculia meant those terms would not be useful as disorder names or in the diagnostic criteria.

Broader Approach for Targeted Care

Broadening the diagnostic category reflects the latest scientific understanding of the condition. Specific symptoms, such as difficulty in reading, are just symptoms. And in many cases, one symptom points to a larger set of problems. These problems can have long-term impact on a person's ability to function because so many activities of daily living require a mastery of number facts, written words, and written expression.

Early identification and intervention are particularly important. The broader DSM-5 category of specific learning disorder ensures that fewer affected individuals will go unidentified, while the detailed specifiers will help clinicians effectively target services and treatment.

DSM is the manual used by clinicians and researchers to diagnose and classify mental disorders. The American Psychiatric Association (APA) will publish DSM-5 in 2013, culminating a 14-year revision process.

<https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/dsm-5-fact-sheets>

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DYSLEXIA

DSM-5 (APA, 2013):

Dyslexia is an alternative term used to refer to a pattern of learning difficulties characterized by problems with accurate or fluent word recognition, poor decoding, and poor spelling abilities. If dyslexia is used to specify this particular pattern of difficulties, it is important also to specify any additional difficulties that are present, such as difficulties with reading comprehension or math reasoning.

WIKIPEDIA (<http://en.wikipedia.org/wiki/Dyslexia>):

Dyslexia is a broad term defining a learning disability that impairs a person's fluency or accuracy in being able to read, speak, and spell and which can manifest itself as a difficulty with phonological awareness, phonological decoding, orthographic coding, auditory short-term memory, and/or rapid naming. Dyslexia is separate and distinct from reading difficulties resulting from other causes, such as a non-neurological deficiency with vision or hearing, or from poor or inadequate reading instruction. It is believed that dyslexia can affect between 5 to 10 percent of a given population although there have been no studies to indicate an accurate percentage.

There are three proposed cognitive subtypes of dyslexia: auditory, visual and attentional. Although dyslexia is not an intellectual disability, it is considered both a learning disability <http://en.wikipedia.org/wiki/Dyslexia> - cite_note-MeSH-13#cite_note-MeSH-13 and a reading disability. Dyslexia and IQ are not interrelated, since reading and cognition develop independently in individuals who have dyslexia.

Accomplished adult dyslexics may be able to read with good comprehension, but they tend to read more slowly than non-dyslexics and may perform more poorly at nonsense word reading (a measure of phonological awareness), and spelling.

The *World Federation of Neurology* defines dyslexia as "a disorder manifested by difficulty in learning to read despite conventional instruction, adequate intelligence and sociocultural opportunity".

MedlinePlus and the *National Institutes of Health* define dyslexia as "a reading disability resulting from the inability to process graphic symbols".

The *National Institute of Neurological Disorders and Stroke* gives the following definition for dyslexia: "Dyslexia is a brain-based type of learning disability that specifically impairs a person's ability to read. These individuals typically read at levels significantly lower than expected despite having normal intelligence. Although the disorder varies from person to person, common characteristics among people with dyslexia are difficulty with spelling, phonological processing (the manipulation of sounds), and/or rapid visual-verbal responding. In adults, dyslexia usually occurs after a brain injury or in the context of dementia. It can also be inherited in some families, and recent studies have identified a number of genes that may predispose an individual to developing dyslexia".

DYSLEXIA SPELD FOUNDATION (<http://www.dyslexia-speld.com/>):

Dyslexia is one of several distinct learning disabilities. It is characterised by a difficulty with reading and writing that often appears to be surprising in a child who otherwise appears capable and academically promising.

Most current definitions of dyslexia focus on the fact that "accurate and fluent word reading and/or spelling develops very incompletely or with great difficulty". This focuses on literacy at the 'word level' and implies that the problem is severe and persistent despite appropriate learning opportunities (*The British Psychological Society* 1999). Spelling, comprehension, reading accuracy, reading rate, word identification and phonological coding are all affected.

INTERNATIONAL DYSLEXIA ASSOCIATION (<http://www.interdys.org/>):

Dyslexia is 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 the growth of vocabulary and background knowledge.

Adopted by the IDA Board of Directors, Nov. 12, 2002. This Definition is also used by the National Institute of Child Health and Human Development (NICHD).

Studies show that individuals with dyslexia process information in a different area of the brain than do non-dyslexics. Many people who are dyslexic are of average to above average intelligence.

AUSTRALIAN DYSLEXIA ASSOCIATION (<http://dyslexiaassociation.org.au/>):

The student who struggles with reading and spelling often puzzles teachers and parents. The student receives the same classroom instruction as other students but continues to struggle with some or all of the many facets of reading and spelling. This student may have dyslexia.

The primary symptoms are:

Problems learning the letter sounds for reading and spelling

Difficulty in reading single words, such as on flash cards and in lists (decoding)

Lack of fluency

Reading slowly with many mistakes

Poor spelling

Poor visual gestalt / coding (orthographic coding)

The word dyslexia comes from the Greek language and means difficulty with words. Individuals with dyslexia have trouble with reading and spelling despite having the ability to learn. Individuals with dyslexia can learn, they just learn in a different way. Often these individuals, who have talented and productive minds, are said to have a language learning difference.

A student with dyslexia will have a particular pattern of strengths and weaknesses which indicate a dyslexic profile. The central difficulty for a student with dyslexia is to convert letter symbols to their correct sound (decode) and convert sounds to their correct written symbol (spell). Research into dyslexia subtypes indicate that poor visual (i.e., orthographic) coding can also be part of the difficulty.

DYSLEXIA AUSTRALIA (<http://www.dyslexia-australia.com.au/>):

The *Oxford English Dictionary* defines dyslexia as a disorder involving difficulty in learning to read words, letters and other symbols.

Dyslexia literally means 'trouble with words'. It is the term used to describe difficulties with spelling, writing and reading. The challenges can come in many different forms and are not limited to reversals of letters and words, a common misconception.

Dyslexia Australia's definition: Dyslexia is the capacity to process information differently, enabling innovative thought and perception. It is characterised by a visual and experiential learning style. Methods using this learning style allow dyslexic people to realise their capabilities and minimise the negative impact commonly developed by conventional methods. (*concept by C. Fraser. Wording by B. Baird and C. Fraser*).

DYSCALCULIA

DSM-5 (APA, 2013):

Dyscalculia is an alternative term used to refer to a pattern of difficulties characterized by problems processing numerical information, learning arithmetic facts, and performing accurate or fluent calculations. If dyscalculia is used to specify this particular pattern of mathematic difficulties, it is important to also to specify any additional difficulties that are present, such as difficulties with math reasoning or word reasoning accuracy.

WIKIPEDIA (<http://en.wikipedia.org/wiki/Dyscalculia>)

Dyscalculia (or math disability) is a specific learning disability involving innate difficulty in learning or comprehending simple arithmetic. It is akin to Dyslexia and Dysgraphia, and includes difficulty in understanding numbers, learning how to manipulate numbers, learning Mathematics facts, and a number of other related symptoms (although there is no exact form of the disability).

Math disabilities can also occur as the result of some types of brain injury, in which case the proper term is Acalculia, to distinguish it from Dyscalculia which is of innate, genetic or developmental origin.

Although math learning difficulties occur in children with low IQ, Dyscalculia can also be found in people with normal to superior intelligence. Estimates of the prevalence of Dyscalculia range between 3 and 6% of the population.

DYSCALCULIA INFO (<http://www.dyscalculiainfo.org/>)

Dyscalculia exists in a number of different varieties, each involving a specific difficulty in solving mathematical tasks. It corresponds with mathematical performance to dyslexia in the area of reading. The majority of children and adults who are subject to Dyscalculia have the ability to read and the ability to understand what is read unimpaired, although about 20–30 % of those who are subject to Dyscalculia are characterized by having difficulties reading and with mathematics. They often require extensive mental strain to carry out even simple arithmetic tasks. They count using their fingers as a visual aid far into the upper grades.

Children and adults subject to Dyscalculia nevertheless tend to be of normal intelligence, but often present an uneven picture in their results on intelligence tests. Their problems reflect not emotional issues but difficulties in mentally connecting with specific types of thought processes.

DYSLEXIA AUSTRALIA (<http://www.dyslexia-australia.com.au>)

Dyscalculia is when there are problems with Mathematics - counting, adding, subtracting, multiplying, and dividing.

The following are some of the common characteristics of people with Dyscalculia:

- Number additions, substitutions, transpositions, omissions, and reversals.
- Inability to grasp and remember math concepts, rules, formulas, and sequence.
- Gets lost or disoriented easily. May have a poor sense of direction, lose things often, and seem absent minded.
- Difficulty remembering dance step sequences, rules for playing sports.
- Difficulty with the abstract concepts of time and direction.
- Difficulty with time management, schedules, and sequences of past or future events.
- Unable to keep track of time. May be chronically late.
- Inconsistent results in addition, subtraction, multiplication and division.
- Poor mental math ability.

DYSGRAPHIA

DSM-5 (APA, 2013):

Dysgraphia was not defined in the DSM-5.

DYSLEXIA-SPELD FOUNDATION (<http://www.dsfn.net.au>)

Dysgraphia is a specific learning disability that affects written expression.

Dysgraphia can appear as difficulties with spelling, poor handwriting and trouble putting thoughts on paper. Dysgraphia can be a language based, and/or non-language-based disorder.

Many people have poor handwriting, but Dysgraphia is more serious. Dysgraphia is a neurological disorder that generally appears when children are first learning to write. Experts are not sure what causes it, but early treatment can help prevent or reduce problems.

Writing requires a complex set of motor and information processing skills. Not only does it require the ability to organize and express ideas in the mind. It also requires the ability to get the muscles in the hands and fingers to form those ideas, letter by letter, on paper.

Dysgraphia that is caused by a language disorder may be characterised by the person having difficulty converting the sounds of language into written form (phonemes into graphemes) or knowing which alternate spelling to use for each sound. A person with Dysgraphia may write their letters in reverse, have trouble recalling how letters are formed, or when to use lower- or upper-case letters. A person with Dysgraphia may struggle to form written sentences with correct grammar and punctuation, with common problems including omitting words, words ordered incorrectly, incorrect verb and pronoun usage and word ending errors. People with Dysgraphia may speak more easily and fluently than they write.

Non-language-based Dysgraphia's are those caused by difficulties performing the controlled fine motor skills required to write. The generic term apraxia refers to a wide variety of motor skill deficits in which the voluntary execution of a skilled motor movement is impaired. Apraxia can involve a single controlled movement, or a sequence of movements, such as writing a single letter or entire words.

DYSLEXIA AUSTRALIA (<http://www.dyslexia-australia.com.au>)

People with Dysgraphia may display the following signs:

- May exhibit strong verbal but particularly poor writing skills.
- Random (or non-existent) punctuation.
- Generally illegible writing, despite appropriate time and attention given the task.
- Inconsistencies: mixtures of print and cursive, upper and lower case.
- Irregular sizes, shapes or slant of letters.
- Unfinished words or letters, omitted words.
- Inconsistent position on page with respect to lines and margins and inconsistent spaces between words and letters.
- Cramped or unusual grip, especially holding the writing instrument very close to the paper or holding thumb over two fingers and writing from the wrist.
- Talking to self while writing, or carefully watching the hand that is writing.
- Slow or laboured copying or writing - even if it is neat and legible.

Clinical Cohort: Reading Disorder

The key feature of Reading Disorder (commonly known as dyslexia) is significant impairments in reading ability (as measured via standardised testing), relative to what would be expected for the child's age, intelligence levels and current level of education. Reading Disorder is specified in the DSM-IV-TR, with the criteria that the impairments observed in reading ability should significantly interfere with the child's academic achievements and their ability to deal with everyday activities which rely upon reading knowledge and skills. Difficulties in reading can manifest both in oral and silent reading, with both overall slowness in reading and comprehension errors are observed. Common areas of difficulty in children with Reading Disorder include:

- Slow reading speed
- Poor comprehension
- Omission/commission errors while reading
- Reversal of words or letters while reading
- Poor sight word vocabulary
- Difficulty associating letters and syllables to specific sound (phonics)

It has been estimated that approximately 4% of children have a Reading Disorder. Reading Disorder is not usually diagnosed before year one, when the child begins to learn reading skills at a more in-depth level. The earlier that Reading Disorder is identified the better the prognosis is for the child to engage successfully in remedial classes.

Cognitive:

WISC-IV Index Interpretation:

The performance of children with Reading Disorder was compared to matched control children on the WISC-IV, as part of the process of norm construction. The children with Reading Disorder were found to display **significantly lower** FSIQ scores (average 10.8 points lower) and significantly lower scores on all indexes, in particular WMI (average 12.8 points lower) and VCI (average of 9 points lower). Children with Reading Disorder were found to have WMI scores which were an average of 5 points lower than the VCI scores and 7.5 points lower than the PRI scores.

WISC-IV Subtest Interpretation:

When examining performance on individual subtests, the children with Reading Disorder were found to exhibit significantly lower scores on the Similarities, Comprehension, Vocabulary, Word Reasoning, Information, Picture Completion, Matrix Reasoning, Letter-Number Sequencing, Digit Span, and Arithmetic subtests. The subtests of Cancellation, Block Design, and Picture Concepts were demonstrated to be the least effected by Reading Disorder, of all the WISC-IV subtests.

The subtests of Vocabulary, Information, Letter-Number Sequencing and Arithmetic were found to demonstrate particularly large effect sizes, when comparing the performance of children with Reading Disorders on the WISC-IV and a matched control group.

The lower scores on the Vocabulary and Information subtests are likely to be a reflection of the limited availability of information that children with impaired reading are able to acquire from reading. The lower scores on the Letter-Number Sequencing and Arithmetic subtests suggest that impairments in working memory are also seen in children who have difficulties reading. Working memory is necessary for reading, as the words which are being read have to be held in one's mind, and then processed as a group, in order to allow for the meaning of the words and the overall writing to be fully understood and comprehended.

There are a number of measures available which assess different aspects of reading and comprehension, which can be used to determine in more detail the underlying areas of weakness in reading, which are specific to the individual child.

WISC-V Index Interpretation:

The performance of children with Reading Disorder was compared to matched control children on the WISC-V, as part of the process of norm construction. The children with Reading Disorder were found to display **significantly lower** ($p < .01$) average FSIQ scores (13.07 points lower) and significantly lower average scores on all indexes; VCI (11.63 points lower), VSI (8.37 points lower), FRI (9.40 points lower), WMI (16.23 points lower), and PSI (7.37 points lower). The largest effect sizes are observed for the WMI and VCI, which is consistent with research literature that suggests a relationship between reading achievement and difficulties with multiple components of working memory (Wang & Gathercole, 2013).

WISC-V Subtest Interpretation:

When examining performance on individual subtests within the WISC-V, the children with Reading Disorder were found to exhibit **significantly lower** ($p < .01$) scores on the Similarities, Vocabulary, Information, Comprehension, Visual Puzzles, Matrix Reasoning, Arithmetic, Digit Span, Picture Span, Letter-Number Sequencing, and Coding subtests.

The subtests of Picture Span and Digit were found to demonstrate particularly large effect sizes, when comparing the performance of children with Reading Disorders on the WISC-V and a matched control group.

Behavioural:

Reading Disorder can have a wide spread impact on the child's performance academically, with reading being an essential requirement for essentially all subjects at school. In a child with otherwise average intelligence, difficulties in reading can prevent them from achieving at their full academic potential. Studies have found that 20-55% of children with Reading Disorder have Attention Deficit/Hyperactivity Disorder (ADHD). The casual relationship between these two disorders is unclear, as ADHD could exacerbate a child's reading difficulties (reduce their ability to focus on the task) or the ADHD may be a reaction to the child's reading difficulties and the frustrations they are experiencing. Older children are more likely to display externalising behaviours if they have a Reading Disorder, possibly due to the long standing nature of the problems and their constant struggling to be able to read and understand.

It is important to be mindful that all child develop at different rates, thus it needs to be considered whether the child is displaying a genuine deficit in reading, as opposed to just a delayed pattern of development or low overall intelligence.

Psychological:

60-80% of individuals with Reading Disorders who are diagnosed are males. This bias may be a consequent of boys tending to display disruptive externalising behaviours, in response to their difficulties with reading, which teachers find more of a problem in the classroom. Girls are likely to display internalising patterns of behaviour, particularly depression, often being quiet and withdrawn at school. Conduct disorder, Oppositional Defiant Disorder and depression are all observed at higher rates in children with Reading Disorder, than the overall population, which potentially indicates that if a child presents with these disorders the possibility of impairments in reading should be investigated as potential causal variables. Self-esteem and social problems are seen, as the child will be struggling in many areas at school, may have communication problems and as a consequence of poor reading, they may fail to acquire a advanced vocabulary and knowledge base from which to learn about new constructs and talk competently to their peers.

Clinical Cohort: Disorder of Written Expression and co-morbid Reading Disorder

The key feature of Disorder of Written Expression is significant impairment in a child's writing skills (as measured via standardised testing), relative to what would be expected for the child's age, intelligence levels and current level of education. Disorder of Written Expression is specified in the DSM-IV-TR, with the criteria that the impairments observed in writing ability should significantly interfere with the child's academic achievements and their ability to deal with everyday activities which rely upon writing skills. Children with Disorder of Written Expression may show impairments in writing in the following areas:

- Grammatical or punctuation errors in writing
- Numerous spelling errors
- Poor paragraph organisation and formatting
- Extremely poor handwriting.

It is important to ensure that a diagnosis of Disorder of Written Expression is not given if a child displays poor quality handwriting or spelling errors, when other difficulties of written expression are not observed. Diagnosis of Disorder of Written Expression is difficult, due to there being few available standardised testing instruments which focus exclusively on assessing a child's writing ability. Often the child is asked to copy written text, complete dictation tasks and write spontaneously, as a means of establishing a child's writing ability and whether they are performing at age and IQ appropriate levels.

Disorder of Written Expression is found to occur in conjunction with Reading Disorder in a majority of children, with its occurrence in isolation from another Learning Disorder (reading Disorder or Mathematics Disorder) being very rare. Due to this, most research and remediation programs focus on children with Disorder of Written Expression and co-morbid Reading Disorder. The disorder is also found with other language and perceptual/motor deficits. Disorder of Written Expression is not usually diagnosed until around second grade, where the child's writing ability begins to visibly fall behind that of their peers.

Cognitive:

WISC-IV Index Interpretation:

The performance of children with a Disorder of Written Expression and co-morbid Reading Disorder, was compared to matched control children on the WISC-IV, as part of the process of norm construction. The children with a Disorder of Written Expression and co-morbid Reading Disorder were found to present with **significantly lower** average scores on the FSIQ (average of 8.7 points lower) and on the WMI (average of 9.8 points) and PSI (average of 11.4 points) indices. The target children were also found to have differences between the indices of the WISC-IV, with the WMI found to be consistently lower than both the VCI (4.5 points) and the PRI (8 points).

WISC-IV Subtest Interpretation:

When examining performance on individual subtests of the WISC-IV, the children with Disorder of Written Expression and co-morbid Reading Disorder were demonstrated to scores significantly lower on the Vocabulary, Information, Picture Completion, Letter-Number Sequencing, Digit Span, Arithmetic, and Coding subtests. The subtests of Arithmetic, Coding, Information, Vocabulary, Letter-Number Sequencing, and Digit Span were found to be the most informative when assessing the cognitive performance of children with Disorder of Written Expression and co-morbid Reading Disorder. The WISC-IV subtests of Picture Concepts, Cancellation, and Block Design were shown to be the subtests that were the least informative of a child's cognitive ability if they had a Disorder of Written Expression and co-morbid Reading Disorder.

Children with Reading Disorder (in isolation) can be distinguished from children with Disorder of Written Expression and co-morbid Reading Disorder, using the WISC-IV, through examination of the child's PSI, which appears to show a higher degree of impairment in children with the two learning disorders, rather than Reading Disorder alone.

WISC-V Index Interpretation:

The performance of children with a Disorder of Written Expression and co-morbid Reading Disorder, was compared to matched control children on the WISC-IV, as part of the process of norm construction. The children with a Disorder of Written Expression and co-morbid Reading Disorder were found to present with **significantly lower** ($p < .01$) average scores on the VCI (8.09 points lower), FRI (9.45 points lower), WMI (12.95 points lower), and FSIQ (11.41 points lower). Of these significant differences, WMI had the largest effect size.

WISC-V Subtest Interpretation:

When examining performance on individual subtests of the WISC-IV, the children with Disorder of Written Expression and co-morbid Reading Disorder were demonstrated to scores **significantly lower** ($p < .01$) on the Similarities, Information, Figure Weights, Arithmetic, Digit Span, Picture Span, and Letter-Number Sequencing.

Behavioural & Psychological:

As with the other Learning Disorders, Disorder of Written Expression and co-morbid Reading Disorder, children are more likely to display externalising behaviours, poor self-esteem and depression as a consequence of their struggles with trying to perform tasks which they can see their peers doing with relative ease. Research has supported these children as having higher incidences of Attention Deficit/Hyperactivity Disorder (ADHD), Conduct Disorder and Oppositional Defiance Disorders, particularly boys. The casual relationship between these disorders is unclear, as ADHD could exacerbate a child's reading and writing difficulties (reduce their ability to focus on the task) or the ADHD may be a reaction to the child's reading and writing difficulties and the frustrations they are experiencing. Older children are more likely to display externalising behaviours if they have a Learning Disorder, possibly due to the longstanding nature of the problems and their constant struggling to be able to read and understand. Self-esteem and social problems are also commonly seen in these children, as they will generally struggle at school, may have communication problems and as a consequence of poor reading and writing, they may fail to acquire an advanced vocabulary and knowledge base from which to learn about new constructs.

Clinical Cohort: Left-Handedness and Cognitive Difficulties

A study assessing handedness in pre-school children was administered to a Viennese sample of 120 children of the ages 4 to 6.5 (18 left-handed, 17 ambidextrous and 85 right-handed).

For the purpose of validation, the handedness of the children was assessed via a questionnaire given to parents, observation of the hand used to draw and testing of visual-motor skills as well as general level of development using the Viennese Development Test (WET, Kastner-Koller & Deimann, 2002).

Compared to ambidextrous and right-handed children, **left-handed** children were found to have **significantly lower visual-motor skills**.

Goez & Zelnik (2008) investigated the distribution of hand dominance in 98 children (aged 5.5-17.0 years) with developmental coordination disorder.

Thirty children (30.6%) were found to be left-handed and 13 (13.3%) were identified as ambidextrous. The prevalence of left-handedness among their parents and siblings was found to be similar to that of the general population.

The results suggest that children with developmental coordination disorder present with a **higher frequency of left-hand dominance** compared with the general population.

Other studies have found that left-handedness is significantly over-represented among children with Dyslexia, ADHD, Learning Disabilities, and Autism (Goez & Zelnik 2008).

APPENDIX: WISC-V SUBTEST DESCRIPTIONS

Please note: Supplementary subtests are only administered on an as needed basis.

VERBAL COMPREHENSION	
Similarities (PIS, FSIQ, GAI)	The Similarities subtest involves the child being presented with two words that represent common objects or concepts and describing how they are similar. It is designed to measure verbal concept formation and abstract reasoning. It also involves crystallized intelligence, word knowledge, cognitive flexibility, auditory comprehension, long-term memory, associative and categorical thinking, distinction between nonessential and essential features, and verbal expression.
Vocabulary (PIS, FSIQ, GAI)	The Vocabulary subtest comprises both picture and verbalised items. For picture items, the individual names the depicted object. For verbal items, the individual defines the word that is read aloud. Vocabulary is designed to measure word knowledge and verbal concept formation. It also measures crystallized intelligence, fund of knowledge, learning ability, verbal expression, long-term memory, and degree of vocabulary development. Other abilities that may be used during this task include auditory perception and comprehension, and abstract thinking.
Comprehension (supplementary subtest)	The Comprehension subtest requires the individual to answer questions based on their understanding of general principles and social situations. Comprehension is designed to measure verbal reasoning and conceptualization, verbal comprehension and expression, the ability to evaluate and use past experience, and the ability to demonstrate practical knowledge and judgement. It also involves crystallized intelligence, knowledge of conventional standards of behaviour, social judgment, long-term memory, and common sense.
Information (supplementary subtest)	The Information subtest involves the individual answering verbally presented questions that address a broad range of general knowledge topics. The subtest is designed to measure an individual's ability to acquire, retain, and retrieve general factual knowledge. It involves crystallized intelligence, long-term memory, and the ability to retain and retrieve knowledge from the environment and/or formal instruction. Other skills used include verbal perception, comprehension, and expression
VISUAL SPATIAL	
Block Design (PIS, FSIQ, GAI)	All items of the Block Design subtest require the individual to view a constructed model and/ or a picture on the client's iPad/ Stimulus Book, and use red-and-white blocks to re-create the design within a specified time limit. This subtest measures the individual's ability to analyses and synthesise abstract visual stimuli. It also involves nonverbal concept formation and reasoning, broad visual intelligence, visual perception and organisation, simultaneous processing, visual-motor coordination, learning, and the ability to separate figure-ground in visual stimuli.
Visual Puzzles (PIS)	The Visual Puzzles subtest requires the individual to view a completed puzzle and select three response options that together would reconstruct the puzzle. The subtest is designed to measure mental, non-motor construction ability, which requires visual and spatial reasoning, mental rotation, visual working memory, understanding part-whole relationships, and the ability to analyse and synthesize abstract visual stimuli. Visual Puzzles measures visual processing and acuity, spatial relations, integration and synthesis of part-whole relationships, nonverbal reasoning, and trial-and-error learning.

FLUID REASONING	
Matrix Reasoning (PIS, FSIQ, GAI)	The individual views an incomplete matrix and selects the missing portion from five response options on the Matrix Reasoning test. The task requires the individual to use visual-spatial information to identify the underlying conceptual rule that links all the stimuli and then apply the underlying concept to select the correct response. The subtest is designed to measure fluid intelligence, broad visual intelligence, classification, and spatial ability, knowledge of part-whole relationships, and simultaneous processing. Additionally, the subtest requires attention to visual detail and working memory.
Figure Weights (PIS, GAI)	The Figure Weights subtest involves the individual viewing a scale, which is missing weight(s) and then they have to select the response option which balances that scale. This task requires the individual to apply the quantitative concept of equality to understand the relationship among objects and apply the concepts of matching, addition, and/or multiplication to identify the correct response. The subtest measures quantitative fluid reasoning and induction. Quantitative reasoning tasks involve reasoning processes that can be expressed mathematically, emphasising inductive or deductive logic.
Picture Concepts (supplementary subtest)	Picture Concepts involves the individual being presented with two or three rows of pictures and then choosing one picture in each row to form a group with a common characteristic. This test requires the individual to use the semantic representations of nameable objects to identify the underlying conceptual relationship among the objects and to apply that concept to select the correct answer. No image appears more than once within the subtest. The subtest is designed to measure fluid and inductive reasoning, visual-perceptual recognition and processing, and conceptual thinking. Additionally, this task requires visual scanning, working memory, and abstract reasoning. It may also involve crystallized knowledge.
Arithmetic (supplementary subtest)	The individual mentally solves a series of orally presented Arithmetic problems within a specified time limit on the Arithmetic subtest. For both the picture and verbal items, Arithmetic involves mental manipulation, concentration, brief focussed attention, working memory, short- and long- term memory, numerical reasoning ability, applied computational ability, and mental alertness. It may also involve sequential processing; fluid, quantitative, and logical reasoning; and quantitative knowledge. Additionally, this task requires intact auditory/ linguistic processes, including auditory discrimination and comprehension, and to a lesser degree verbal expression.

WORKING MEMORY	
Digit Span (PIS, FSIQ)	For Digit Span, the individual is read a sequence of numbers and recalls the numbers in the same order (Forward task), reverse order (Backward task), and ascending order (Sequencing task). The shift from one Digit Span task to another requires cognitive flexibility and mental alertness. All Digit Span tasks require registration of information, brief focussed attention, auditory discrimination, and auditory rehearsal. Digit Span Forward measures auditory rehearsal and temporary storage capacity in working memory. Digit Span Backward involves working memory, transformation of information, mental manipulation, and may involve visuospatial imaging. Digit Span Sequencing is designed to measure working memory and manipulation. Digit Span Sequencing is included to increase the cognitive complexity demands of the subtest. Both the backward and sequencing tasks require the resequencing of information; the primary difference is how the sequence is determined. In the backward task, the location of the number in the sequence must be maintained in working memory for proper resequencing to occur. In the sequencing task, the quantitative value of the number must be maintained in working memory and compared to numbers before and after its occurrence. In this task, the individual does not know where the number will occur in the response until all numbers are administered.
Picture Span (PIS)	The Picture Span subtest requires the individual to memorise one or more pictures presented on the client's iPad/ stimulus book and then identify the correct pictures (in sequential order, if possible) from options on a response page. Picture Span measures visual working memory and working memory capacity. Similar tasks also involve attention, visual processing, visual immediate memory, and response inhibition. The subtest is constructed similarly to existing visual working memory tasks, but is relatively novel in its use of semantically meaningful stimuli. The use of these stimuli may activate verbal working memory as well.
Letter-Number Sequencing (supplementary subtest)	Letter-Number Sequencing requires the individual to read a sequence of numbers and letters and recall the numbers in ascending order and the letters in alphabetical order. Like the Digit Span tasks, Letter-Number Sequencing requires some basic cognitive processes, such as auditory discrimination, brief focussed attention, concentration, registration, and auditory rehearsal. Additionally, the task involves sequential processing, the ability to compare stimuli based on quantity or alphabetic principles, working memory capacity, and mental manipulation. It may also involve information processing, cognitive flexibility, and fluid intelligence. The higher order skills represent executive control and resource allocation functions in working memory.
PROCESSING SPEED	
Coding (PIS, FSIQ)	The Coding subtest involves the individual using a key to copy symbols that correspond with simple geometric shapes. Using a key, the individual selects each symbol in its corresponding box within a specified time limit. In addition to processing speed, the subtest measures short-term memory, visual-motor coordination, visual scanning ability, cognitive flexibility, attention, concentration, and motivation. It may also involve visual sequential processing and fluid intelligence.
Symbol Search	The Symbol Search subtest requires the individual to scan a group of symbols and indicate whether the target symbol is present within a specified time limit. In addition to visual-perception and decision-making speed, the subtest involves short-term visual memory, visual-motor coordination, inhibitory control, visual discrimination, psychomotor speed, sustained attention, and concentration. It may also measure perceptual organization, fluid intelligence, and planning and learning ability.
Cancellation (supplementary subtest)	For Cancellation, the individual scans two arrangements of objects (one random, one structured) and marks target objects while working within a specified time limit. The subtest measures rate of test taking, speed of visual-perceptual processing and decision making, visual scanning ability, and visual-perceptual recognition and discrimination. It may also involve attention, concentration, and visual recall.

APPENDIX: WIAT-III SUBTEST DESCRIPTIONS

Please note: Rarely are all WIAT-III subtests administered as part of an assessment.

READING	
Early Reading Skills	Measures several areas deemed important for developing reading skills: naming letters, letter-sound correspondence (alphabetic principle), phonological awareness, and word reading comprehension. The student names letters of the alphabet, identifies and generates rhyming words, identifies words with the same beginning and ending sounds, blends sounds, matches sounds with letters and letter blends, and matches written words with pictures that illustrate their meaning.
Word Reading	Measures speed and accuracy of decontextualized word recognition. The student reads out loud from a list of words that increase in difficulty. The list of words is read without a time limit. The examiner records the student's progress after 30 seconds and continues administration until the discontinue rule is met or the last item is administered.
Reading Comprehension	Measures untimed reading comprehension of various types of text, including fictional stories, informational text, advertisements, and how-to passages. The student may read passages out loud or silently. After each passage, the student orally responds to literal and inferential comprehension questions that are read out loud by the examiner.
Pseudoword Decoding	Measures the ability to decode nonsense words. The student reads out loud from a list of pseudowords that increase in difficulty. The list of pseudowords is read without a time limit. The examiner records the student's progress after 30 seconds and continues administration until the discontinue rule is met or the last item is administered.
Oral Reading Fluency	Measures speed, accuracy, fluency, and prosody of contextualised oral reading. The student reads passages out loud, and then orally responds to comprehension questions after each passage. Fluency is calculated as the average number of words read correctly per minute. A qualitative scale is completed by the examiner to assess the student's reading prosody. Comprehension questions are asked only to encourage reading for meaning; comprehension performance is not scored quantitatively.
MATHEMATICS	
Numerical Operations	Measures untimed, written maths calculation skills in the following domains: basic skills, basic operations with integers, geometry, algebra, and calculus.
Maths Problem Solving	Measures untimed maths problem-solving skills in the following domains: basic concepts, everyday applications, geometry, and algebra. The student provides oral and pointing responses.
Math fluency- Addition	Measures the speed and accuracy of a student's maths (addition) calculations. The student solves written addition problems within a 60-second time limit.
Math fluency- Subtraction	Measures the speed and accuracy of a student's maths (subtraction) calculations. The student solves written subtraction problems within a 60-second time limit.
Math fluency- Multiplication	Measures the speed and accuracy of a student's maths (multiplication) calculations. The student solves written multiplication problems within a 60-second time limit.
WRITTEN LANGUAGE	
Spelling	Measures written spelling of letter sounds and single words. The student hears each letter sound within the context of a word, and each word within the context of a sentence, and then the student writes the target letter sound or word.
Alphabet Writing Fluency	Measures the ability to write letters of the alphabet within a 30-second time limit. The student may write letters in any order, in cursive or print, in uppercase or lowercase.
Essay Composition	Measures spontaneous, compositional writing skills within a 10-minute time limit.
Sentence Composition	<p>The Sentence Composition subtest contains two components:</p> <p>Sentence Combining: Measures sentence formulation skills and written syntactic maturity. The student combines two or three sentences into one sentence that preserves the meaning of the original sentences.</p> <p>Sentence Building: Measures sentence formulation skills and written syntactic ability. For each item, the student is asked to write one sentence that uses a target words with appropriate context.</p>

APPENDIX: DSM-5 SLD Specifiers matched with WIAT-III Subtests

Specific Learning Disorder – With Impairment in Reading (Word reading accuracy; Reading rate or fluency, Reading comprehension)

Specific Learning Disorder – With Impairment in Mathematics (Number sense; Memorisation of arithmetic facts; Accurate or fluent calculation, Accurate mathematical reasoning)

Specific Learning Disorder – With Impairment in Written Expression (Spelling accuracy; Grammar and punctuation accuracy; Clarity or organisation of written expression)

READING	DSM-5 Specific Learning Disorder – With Impairment in Reading
Early Reading Skills	Word reading accuracy, Reading comprehension
Word Reading - Word Reading Speed	Word reading accuracy, Reading rate or fluency (<i>add if speed was 25th percentile or below</i>)
Reading Comprehension	Reading comprehension
Pseudoword Decoding - Pseudoword Decoding Speed	Word reading accuracy, Reading rate or fluency (<i>add if speed was 25th percentile or below</i>)
Oral Reading Fluency - Oral Reading Accuracy - Oral Reading Rate	Word reading accuracy, Reading rate or fluency Word reading accuracy Reading rate or fluency
MATHEMATICS	DSM-5 Specific Learning Disorder – With Impairment in Mathematics
Numerical Operations	Number sense, Memorisation of number facts, Accurate or fluent calculation
Maths Problem Solving	Number sense, Memorisation of number facts, Accurate or fluent calculation, Accurate mathematical reasoning
Math fluency- Addition	Memorisation of number facts, Accurate or fluent calculation
Math fluency- Subtraction	Memorisation of number facts, Accurate or fluent calculation
Math fluency- Multiplication	Memorisation of number facts, Accurate or fluent calculation
WRITTEN LANGUAGE	DSM-5 Specific Learning Disorder –With Impairment in Written Expression
Spelling	Spelling accuracy
Alphabet Writing Fluency	
Essay Composition - Word Count	
- Theme Dev. and Text Org.	Clarity or organisation of written expression
- Grammar and Mechanics	Spelling accuracy, Grammar and punctuation accuracy
Sentence Composition	Spelling accuracy; Grammar and punctuation accuracy; Clarity or organisation of written expression