

Effective literacy intervention strategies

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Part 4 : A diagnostic pathway for reading difficulties

To diagnose reading difficulties, you need to examine reading at five stages:

Engaging the reader- get reader to be prepared to show what they know re reading					
Describe the reading performance. Is there a reading difficulty ?					
Performance on reading tests; comparing it with standardized performance of representative group			Performance on typical reading tasks		
Analysing reading performance:					
<ul style="list-style-type: none"> • What aspects of reading have or haven't been learnt? • Where is person in terms of reading development ? • What strategies does reader use ? 					
reading prose aloud	silent prose reading	isolated word reading	patterns in reading	attitude, motivation to reading	knowledge of reading strategies
Explaining reading disabilities by linking it with other areas of learning					
Relevant language, psycholinguistic knowledge	Relevant reasoning & cognitive skills	Experiential knowledge	Sensory impairment	Earlier teaching and modelling	Emotional response to reading
Reporting and recommending the outcomes; learning to read teaching, conditions to improve reading. Reporting to other professionals					

Developing an assessment plan : To diagnose reading difficulty gather information to answer the following questions:

engage reader in reading	Prepare reader to show what she / he knows
describe reading performance	Evidence of reading difficulty ? Screen reading
analyse reading performance	What aspects of reading have/ haven't been learnt ? How does reader read ?
explain reading difficulty	What related areas of learning may have lead to reading difficulty?
recommended intervention	Under what conditions can the reader more easily learn to read?

We will use this flowchart or pathway through our discussion of reading diagnosis.

Engaging the reader

engage reader in reading
describe reading performance
analyse reading performance
explain reading difficulty
recommended intervention

Many middle years students do not show what they know in assessment situations. How can you assist students to display what they know ? There is a range of actions that we can take in the assessment situation to help students to display what they know. We can:

- help students 'learn to read' assessment contexts and decide what knowledge to show.
- maximise their self-confidence in showing what they know, particularly early in the assessment.
- help them learn what to do when doing part of a task seems difficult initially.
- where appropriate, provide optimal practice on the types of tasks used.
- where possible, administer test item in multiple ways.
- help learners see the assessment as part of their overall long term learning plan or 'journey'.
- help them see that the assessment wants them to show what they know, not on what they don't know.
- ensure that our body language is minimally threatening.
- reduce their fear of public display.
- help them see that the assessment is not necessarily threatening and that they can make it work for them, that they can have some control over the assessment process.
- let the students see that we expect them to be successful with at least some of the tasks.
- during the assessment, let them see that what they know is recognised and valued. Give feedback such as "You are on the way with that one. Try looking at it slightly differently ..."
- help students see that they have been prepared for the assessment, that they understand its parameters. Help them to practise automatize various ways of showing what they know.

Describing reading performance

engage reader in reading
describe reading performance
analyse reading performance
explain reading difficulty
recommended intervention

Does a reading difficulty exist ? Compare how the reader reads with the reader's peer learning group or a comparable normed group.

Using reading tests

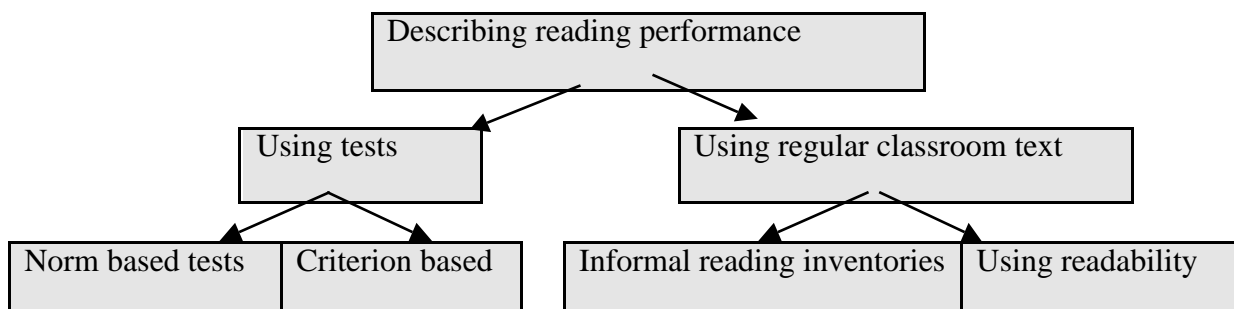
Selecting the test The tests you will use will be determined by

- the reading behaviours test; reading aloud or silently, reading prose or individual words,
- the age / grade levels of the readers,
- the mode of administration you want; to assess readers individually or in groups and
- the information you want.

To collect samples of reading for later analysis, keep record of the text read and reader's output.

You can assess	To collect samples of reading for later analysis
<p>reading prose aloud and evaluate</p> <ul style="list-style-type: none"> • word reading accuracy; proportion of words read correctly and automatically • reading rate and how fluently the text is read, • how well the text is comprehended at word, sentence, conceptual, topic levels • how well readers can correct errors made and deal with loss of fluency 	<ul style="list-style-type: none"> • record precisely what readers say as they read. • record time taken to read each sample of text. • do readers answer comprehension questions automatically or need time to organise their thinking ? • note readers' stress, behavioural indicators • record how reading ability changes when cued to read under different conditions. <p>Prior to reading examine the student's ability to</p> <ul style="list-style-type: none"> β Predict the topic of the text β Suggest sufficient words to scaffold reading β Talk about possible ideas β Say how they will read.
<p>reading prose silently, evaluate comprehension at</p> <ul style="list-style-type: none"> • word level; match text words with pictures or synonyms, • sentence level; paraphrase, re-tell, literal tasks, • conceptual level; predict, cloze • topic level; summarise, skim, scan, infer main ideas, select best title <p>The time taken to respond indicates the extent to which aspects are attention demanding.</p>	<ul style="list-style-type: none"> • in multiple choice tests, note items answered correctly /incorrectly and incorrect choices. • in cloze tasks, note words inserted and whether ability changes when they read aloud • where readers read a text and select the best matching picture, record the time taken to read the text initially and then to make the choice. • record how reading ability changes when cued to read under different conditions. • record on audio-tape the reader's ability to read the text aloud after completing the task.
<p>reading individual words; note the types of words</p> <ul style="list-style-type: none"> • read automatically • reader using analysis and segmentation • that cause difficulty • read in prose but not individually. <p>identify how reader integrates sound patterns in words look at identifying letter clusters</p>	<ul style="list-style-type: none"> • record attempts and whether each word was read automatically • look at reading 1- 2- and 3- syllable words; regular + irregular, frequent /less frequent

How will you describe the reading performance ?



- standardized tests give you norm-referenced descriptions. They either
 - link the reading score with age and / or grade norms.
 - describe the performance as a %ile rank or stanine score for groups of students.
 - provide a standard score.
- in terms of the type of text readers can read easily, with some thought and with difficulty
- in terms of the reading abilities or competencies displayed.

Tests measuring word level reading

		Outcome	Normed ?	Format
Progressive Achievement Tests: Reading Vocabulary	PAT:RV	nc, tm	Aus 70 G 3-9	gr, mc
Peabody Individual Achievement Test: Reading Recognition	PIAT: RR	nc	US 86K-12	ind, say
Kaufman Test of Educational Achievement: Reading Decoding	KTEA;	nc, ae	US 82-3 K-12	ind, say
Woodcock Language Proficiency Language Battery - Revised	WLPB	nc	US 87-9 2-16+	ind, say
Reading Progress Tests	RPT	nc	Aus '99 UK '90s	Gr, cl, mc

The types of word reading tasks used in each test are shown in the following:

read aloud lists of isolated words of increasing complexity from 1-4 syllable words	PIAT: RR, KTEA, WLPB-R
graded word lists as IRI	
read aloud words organised into letter cluster categories; 1-syllable words with short and long vowels, and consonant and vowel blends	
match written words with pictures	RPT
select word based on meaning; read a sentence from which a word has been omitted and select from a set of four words the one that fits it	RPT
match written word with homonym	PAT:RV, PRS, WLPB
word analysis; recode unfamiliar words, nonwords to spoken form	WLPB-R

Sentence, conceptual and topic level tests

Test		How text is read		Type of text		Format	Outcome described	Normed ?	Useful ?
		aloud	silent	short	long				
TORCH Test of Reading Comprehension (1987)	TORC		√		√	cl	nc+ae	Aus '84 grs 3-10	gr P-S
Neale Analysis of Reading Ability 3 (Neale, 1998)	NARA	√		√		asq	nc+ae	Aus '98 grs P -6	indiv Pri
Progressive Achievement Tests: Reading Comprehension	PATRC		√		√	mc	nc	Aus '98 grs 3 -9	gr P-S
DART Reading (ACER, 1994),	DART		√		√	asq	nc		gr P-S
PIAT: Reading Comprehension	PIAT		√	√		sp	nc	US	indiv P-S
Woodcock Language Proficiency Battery - Revised	WLPB		√	√		cl	nc	US 80s age 2-79	indiv P-S
Secondary Screening Profiles : Reading	SSP:R		√		√	mc/cl	nc	UK '94 age 11-3	gr P-S
ACER Tests of Basic Skills Aspects of Literacy	TBS- AL		√		√	mc	nc	Aus '95 gr 4-6	gr P-S
Progress in English 8 - 13	PE		√		√	cl	nc	UK '90s age 7-14	gr P-S
	KTEA					asq	nc	US '83 gr 1-12	indiv P-S

Format : multiple choice (mc), answer spoken question (asq) cloze (cl) select picture (sp)

How outcome is described : number correct (nc) time to answer (tm) analyse error (ae)

Useful ? is test used for groups or individually (gr vs indiv) and for what grade levels (Pri, Sec or P-S)

The types of comprehension tasks used in each test are shown in the following

read text aloud and answers comprehension questions. Time taken is used to calculate reading rate	NARA
read silently a text (fiction /non-fiction) and do cloze re-telling of it	TORC (long texts), WLPB-R (short text), SSP (long texts), PE (long texts)
read sentences silently and select picture that matches the text	PIAT
vocabulary, analogies	SSP (meanings of words in text), WLPB-R
proof reading and editing	SSP, PE (spelling and writing conventions)
match written statements	SSP (readers match points of view about a topic)
answer multiple choice items	TBS- AL (posters, poetry, written procedures, factual and narrative, PATRC, PRS

Informal Reading Inventories

A procedure that uses classroom or 'naturalistic' reading tasks to see whether readers are having reading difficulties is the 'informal reading inventory' (IRI) procedure. The IRI procedure allows you to see how readers read typical text. It helps you to

- see what types of texts particular readers can read relatively efficiently.

- estimate 'how far away' readers are from reading required texts.
- select reading content appropriate to a reader.

It is relatively easy and generally quick to administer and to apply the results to classroom teaching. Ask readers to read typical texts either aloud or silently. Select unfamiliar texts graded in difficulty of 100-words for beginners to 350 words for more advanced readers, with 5 comprehension questions assessing detail recall and inference. Note the number of errors made.

Start with text that is at or below the estimated independent reading level for the reader. If you are unsure of the entry point, use a graded word list. Stop testing when the performance is below the criterion for frustration level. Use more difficult text for listening comprehension.

Performance level for each IRI category is:

Reading Level	Word reading accuracy (%)	Comprehension accuracy	Qualitative description
Independent	99	90	Fluent, natural, no finger-pointing or hesitations
Instructional	95	75	Generally relaxed reading, the text is challenging
Frustration	Below 90	Below 50	Reader is tense
Listening ability		75	

If you have texts of different complexity, you use this to identify the types of text readers can read

- without difficulty (texts that are at their independent reading level),
- with a little assistance (texts that are at their instructional level), and
- with difficulty resulting in a substantial loss of meaning (texts at their frustration level).

Using readability measures to describe the comparative difficulty of texts

Readability formulae indicate the reading grade level of particular texts. They differ in that

- some are useful only for books written for younger children, others are more useful for adolescent and adult print, while still others are not restricted;
- some rely on word length (in terms of the number of syllables), some in sentence length, and some by analysis of grammar.

Readability formulae do not take account of:

- the interest, motivation and relevant prior knowledge of readers,
- the ways in which the material is to be used,
- the semantic complexity of sentences in the text. Generalizations or conditional statements for example, may contain relatively few, short words, but code a highly complex idea,
- the words and terms having a specified meaning, or used in specialized ways,
- the size of print and organization on the page, additional pictorial information,
- the grammatical complexity, the density of ideas or conceptual load of the sentences, etc.

To interpret the estimate of readability for any prose text, you need to take account of these factors.

The grade level given by different formulae are interpreted in different ways.

- The Fry indicates the instructional grade level of a text.
- The Smog formula predicts the independent reading level of the same print.

The difference between the two formulae when applied to the same print will be approximately two grade levels, with the Smog indicating the higher or independent reading level, required.

The Smog Readability Procedure is used with print at or above grade 4. It assumes that the difficulty of a passage is determined by the number of words of more than 2 syllables that it contains. You

- select 3 samples of text, one each near the beginning, the middle, and near the end of the text.
- count 10 consecutive sentences in each sample. Any string of words ending with a full stop, a question mark or an exclamation mark is counted as a sentence.
- count every word of 3 or more syllables in the 30 sentences. Any string of letters or numerals beginning and ending with a space or punctuation mark is counted if at least 3 syllables can be recognized when read aloud in context. Count a polysyllabic word each time it is repeated.
- estimate the square root of the number of polysyllabic words counted. Take the square root of the nearest perfect square. For example, if the count were 116 the nearest perfect square would be 121, which has a square root of 11. If the count is about between two perfect squares, choose the lower number. For instance, if the count is 42, take the square root of 36 rather than 49.
- add three to the approximate square root. This result gives the SMOG grade, which is the reading grade that a student must have reached if he is to comprehend fully the text assessed.

Example: apply the Smog Procedure to the passage given earlier:

Number of polysyllabic words
Square root of number of polysyllabic words
Add 3
Readability: =====

The Smog predicts a higher grade level than other formulae.

What tasks/tests would you use? Suggest tasks/tests that you would use to analyse reading at each level of the model. Use the following framework.

Levels of text	Knowledge of structural text features, the 'what', conventions of writing	Reading strategies, 'how to'
word level		
sentence level		
conceptual level		
topic level		
dispositional level		

Analysing reading performance.

engage reader in reading
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You want to know the levels of our reading model at which readers have adequate knowledge and at which levels they are having difficulty.

Some of the questions you want to answer when analysing reading and the types of data you can collect to answer these are shown in the following

Are there word level difficulties ?	<ul style="list-style-type: none"> Assess the reader's ability to read isolated words, note types of words read automatically / using word analysis and those that cause difficulty, Assess word reading accuracy when reading prose Note the rate at which the reader says written words.
Are there sentence, conceptual and topic level difficulties?	<ul style="list-style-type: none"> Note the types of prose read well either aloud or silently and the types that --> drop in performance Note how well they use grammar and the meanings of sentences Note how well they retain a set of concepts or a topic in the text they read
Are metacognitive aspects likely to cause difficulty ?	Note how they use planning and comprehending actions, how well they take remedial action, what they know about useful reading strategies
Are attitudes and feelings or habits likely to cause difficulty ?	Note what readers believe about reading, how it is learnt and themselves as readers, their interest in reading, how often they read, literature they prefer to read

Note the conditions under which they can improve how they read, use their knowledge /strategies.

Analysing reading prose aloud.

To analyse how well readers read aloud, note

- how accurately they read words, use letter patterns, the text meaning and grammar to assist
- how well they understand the text and
- how fluently they read it, how well they convert it to oral language.

Word reading accuracy. To categorise the errors, note whether

Word level processing	<p>Words are read correctly and automatically or with effort / attention ? Does the error</p> <ul style="list-style-type: none"> look like the text word (have 'graphic similarity') ? sound like the text word (that is, has 'phonic similarity') ?
Sentence level	<ul style="list-style-type: none"> Is the sentence with the error is acceptable grammatically ? Is the sentence with the error is acceptable sensible ?
Conceptual, topic	<p>Does the error change the meaning of the sentence containing it ?</p> <p>Does the error change the context, clash with the topic ?</p>
Metacognitive processing	<p>Did the reader re-read incorrect portions of text ?</p> <p>Did the reader correct incorrect portions of text, that is use 'remedial' or 'fix-up' strategies re-read?</p>

To analyse how a reader reads text aloud, you need to code the errors made. Use the code below to record on the text how a reader says each word: denote

- words read correctly rapidly (that is, automatically) by a tick (✓)
- words on which readers hesitate before saying a word or part of a word by H.
- words that they read in parts and incorrectly by what they said; note what they said for
 - partially vocalised words
 - words read as a sound, vocabulary or grammatical variation of a word
 - words that are read with a shift in intonation
- self-corrections by drawing line around repeated words and note purpose for repetition:
 - show correcting an error by C
 - show replacing a correct by incorrect response IC
 - show unsuccessfully correcting an error UC
- anticipating difficult words coming up by pausing and repeating word/s A
- substituted words by writing them above their matching word in the text
- words that are omitted by circling them
- words that are reversed are drawing arrows above them
- added words by marking them on the text at the point of insertion using the Δ symbol.

The coding of a student's reading aloud, using the coding system, is shown below:

<p style="text-align: center;">C There's</p> <p>3 3 3 3 3 at here - 3 3 3 3 3 near fur 3 3 someone 3 beaches</p> <p>"No matter where you are on these islands", Sam said, " the beach is never far away". "But some are better</p>	<p style="text-align: center;">H H</p>	<p style="text-align: center;">H so--</p>
<p style="text-align: center;">added</p> <p>3 3 3 3 3 they are 3 3 H answered 3 3 3 3 3 There are not</p> <p>than others", Tom said. Yes, that's right, Pat agreed. "Some are good for swimming. Others, the ones</p>		<p style="text-align: center;">These are ones not / no</p>
<p style="text-align: center;">C</p> <p>3 3 3 good there 3 3 3 are you 3 H work 3 3 3 answered 3 never 3</p> <p>with big waves, are great for surfing". "How is the beach we are going to?" Rob asked. " I've ^ seen</p>	<p style="text-align: center;">where</p>	<p style="text-align: center;">added</p> <p style="text-align: center;">C</p>
<p style="text-align: center;">3 roads</p> <p>all the H H H 3 3 3 3 3 would be 3 3 3 3 There rocks H 3 3 3 3 3</p> <p>a lot of pictures of your beaches". You like this one", Tom said. The road went over a hill. Rob could</p>		
<p>3 3 3 3 3 3 3 3 3 3</p> <p>hear the sound of the waves and smell the sea.</p>		

Once you have coded the reading, you analyse each error by asking the questions below about it. It is more useful to analyse phrases in the text, rather than each word separately. The questions shown in the table below, applied to some of the phrases that were read incorrectly.

Question	What it may suggest about the reading	Example
Did reader pause before saying it?	Poor automatic processing of letter information.	Don hesitated frequently, first at "...never far away"
Did reader re-read part of the sentence containing the error	Whether the reader checks for meaning and grammar while reading. Some readers direct attention at the word level.	Don first re-read at "the beach is..."
Is the error corrected?	Whether the reader can read that part of the text by attending to it. A rate of 3 self-corrections for every 5 miscues is assumed to indicate the use meaning while reading.	Don first corrected after re-reading at "...never far away"
Does the error change the meaning of the text?	The extent to which the reader uses topic and conceptual level knowledge while reading	An example is "are better" read as "are beaches".
Does the error 'fit' with the grammar of the sentence?	The extent to which readers use grammar (sentence level) while reading.	An example is "are better" read as "are beaches".
Does the sentence with the error in it make sense?	Does the reader say sensible relationships while reading at sentence level ?	"But someone are beaches than ...". doesn't make sense is
Does the error look like the written word?	How much of the letter information the reader uses to read.	Don read "where" for "we". These look partly alike.
Does it sound like what was expected?	How well the reader links text and sound information in reading.	The error "good there" doesn't sound like "are great".

Retaining and re-establishing meaning when an error has been made

Readers	What reader does	What it means: Readers
'retain' meaning	say a synonym and continue with reading	use the context and little of the letter information
're-establish' meaning	say incorrectly a word or part of it and then say the word correctly	focus on the letter information and integrate it with the context

An example of each question applied to three incorrect phrases by Don is shown in the table below.

	Text: on these islands Don: at here -	Text: never far away Don: near fur	Text: Janet agreed Don: Jan answered
Substantial pause / hesitation before saying phrase?	no	no	yes
Does error retain meaning of sentence?	partial; error still refers to location	no; meaning differs from text	meaning is largely retained
Is the incorrect phrase re-read?	no	yes	no
Is the incorrect phrase corrected?	no	no	no
Does sentence with the error in it make sense?	yes	no	yes
Does error have same grammatical function as the text phrase?	partial; on versus at	no	yes
Does error look like text phrase?	low similarity	initial letters	initial letters
Does error sound like text phrase?	low similarity	low similarity	partial similarity

When you use this to analyse text read aloud, you can see more clearly the types of errors made.

Text word or phrase	what was read (include hesitation)	text re-read ?	error corrected?	meaning retained?	sentence sensible?	fits with grammar?	Looks like text?	Sounds like text?
on these islands	<i>at here / there's -</i>	√/	X/ X	P/ X	P/ X	√/ X	X/ P	X/ P
never far away"	<i>near H fur H</i>	X	X	X	X	√	P	X
some	<i>someone / H so --</i>	√/ X	X/ X	X/ X	X/ X	X/ X	P/ P	P/ X
are better	<i>are beaches</i>	X	X	X	X	X	P	X
that's right	<i>they are right</i>	X	X	X	X	X	P	P
others, the ones	<i>there are not these are ones</i>	√ X	X X	X P	X X	X √	P P	P P
Summary data	Hesitations : 4	√ 7 X 15	√ 0 X 22	X 13 P 3 √ 6	X 14 P 1 √ 7	X 10 √ 12	X 7 P 12 √ 3	X 12 P 6 √ 4

From this summary table you can see that Don

hesitated before or after reading only 4 of the 75 words	Phonological expression automatic
re-read after 7 errors- re-reading rate of 30 %	inefficient monitoring of meaning
did not correct any of the errors made by re-reading	(sentence and conceptual levels).
said sentences that made sense in about 30 % of errors	Used some sentences level meaning in some cases
about 50% of the words read incorrectly did not belong to the same grammatical category as the text word	Did not use grammar at sentence level to select words when reading
about 60% of the words read incorrectly did not have the same meaning as the matching text words	Did not select / integrate word meanings at the conceptual and topic levels
said words that had some written similarity with text words for about 50 % of errors	Used some of the letter information, distinctive visual features
said words that had no sound similarity with the text words (word level).	Low phonological processing while reading

Use of comprehending strategies. You could infer that Don

- said sentences that were grammatically correct but did not use the grammar of the written sentence. Further assessment may show whether he has appropriate grammar and uses it.
- could recognise letters and letter clusters but had difficulty saying them.
- did not seem to use the meanings of words in the text. Further assessment of his knowledge of word meanings and their links may determine his level of semantic knowledge.
- did not seem to monitor for meaning as he reads; he did not attempt to re-read when what he said didn't make sense or wasn't connected to earlier ideas.
- did not use 'repair strategies for dealing with corrections.

Comprehension; spontaneous retelling in readers' words. Give 1 point to each main idea in the text. For the text above, the key literal ideas and the ones you could infer are as follows.

Characteristic of retelling	Ideas in the story	N of ideas
the main characters	The main characters are Sam, Tom, Pat and Rob	4
theme of story	About boys who were going to the sea	1
plot of the story	One of the boys is new to the island and the others are taking him to a beach	2
events of the story	<ul style="list-style-type: none"> •Wherever you are on the island you're close to the sea •Some of the beaches are good for swimming and others, with big waves, for surfing •They are going along a road to a beach •Tom said Rob would like this beach •Rob could hear the waves and smell the sea 	1 1 2 1 1
inferential ideas (infer, predict, explain, read between the lines)	<ul style="list-style-type: none"> •the island was small. •all the boys except Rob lived on the island. •some beaches were ocean beaches. •the land near the beach they were going to was hilly. •the boys liked the sea / surfing/ swimming / both. 	1 1 1 1 1

There are 12 main literal and at least 5 main inferential ideas. Don re-told the text spontaneously as *There were these boys. They liked surfing. There were going to this beach to go surfing.* This re-telling specifies 3 main ideas. His re-telling score did not exceed 16 %.

Following the spontaneous re-telling, use directed questioning to examine further comprehension (cued retelling) for example for a narrative you can ask

- *Who else was in the story ? What did they do ? Did . happen first ?*
- *Why did ... happen ? Why did they do?*

Examine inferential knowledge by asking questions that go beyond the information given:

- *Why do you think happened ? Would it have happened it*
- *How do you think ?*

Examine topic knowledge by asking questions that involve a summary of the information given:

- *Make up a headline to say the main ideas in the story.*
- *What is a good title for the story ?*

For the text above, the questions Don was asked and his answers are shown below:

- *What were the names of the main characters ? Tom, Rob (2 marks)*
- *Where does the story take place ? At the beach (0 marks)*
- *Did they have far to go to a beach ? No (1 mark)*
- *What sports did people do at the beaches in the story ? Swimming, surfing (2 marks)*
- *How do you know the island was small ? I can't tell (0 marks)*
- *How do you know Rob was new to the island ? He had pictures of it. (1 mark)*

Don recalled 16 % of the main ideas spontaneously and an additional 30% under cued comprehension . Further assessment may indicate whether his comprehension for this type of text could be improved by teaching that increased his automatic reading of words, his level of existing knowledge, his ability to use what he knows, his use of comprehending strategies.

Fluency Does the reading have the 'flow' of oral language ? Fluency is distorted when readers

- read mechanically, without expression
- read word by word rather than in phrases and sentences
- read at an inappropriate rate ; either too fast for comprehension monitoring or too slow for the ideas to be retained in short-term memory
- hesitate and stumble over words so that the flow is distorted or they lose their place
- misuse punctuation.

You can assess fluency for reading different types of text by

- measuring the time taken to read the text and calculate a reading rate by dividing the number of words read by the time taken; this gives an estimate of the words read per second,
- using a checklist to describe the reading aloud

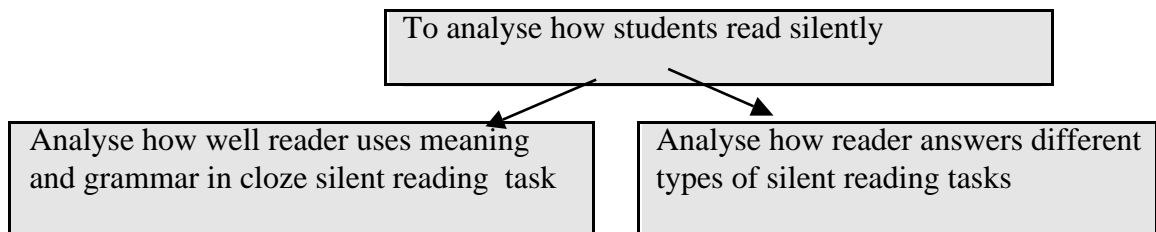
A framework for recording a reader's retelling performance for a narrative.

Characteristic of the retelling	Ideas in the story	Cued recall questions	Number of ideas	Ideas reader mentioned in spontaneous retelling	Responses to cued recall questions
the main characters					
theme of story					
plot of the story					
events of the story					
inferential ideas (infer, predict, explain, read between the lines)					
Summary data					
• recall the main ideas					
• recall specific factual information					
• infer and predict ideas					

Analysing reading prose silently in various ways

- in the type of comprehension; how well readers display
 - literal comprehension; re-tell or paraphrase the ideas in the text
 - inferential comprehension; predict, interpret, apply and transfer, analyse it
 - evaluative comprehension, that is, evaluate the ideas in various ways.
- in the length of text read and amount of text to retain; some readers comprehend shorter text better because they lack
 - the strategies necessary for planning the reading, seeking and organising information
 - the motivation necessary to continue the reading.
- in the complexity of text read; readers may comprehend ideas better when in more simply written text with less complex grammar and fewer ideas per sentence.

How readers read silently.



Analyse silent reading strategies :

- analyse the errors made in cloze contexts under silent reading.
- ask readers to describe how they went about reading.
- observe reading behaviours while reading silently; are they on-task and goal-oriented, do they talk aloud, need to re-read text to store it in short-term memory.

For each incorrect response see whether

- it follows in grammar from the immediately preceding few words.
- it fits with the grammar of the sentence --> reader uses grammar at sentence level.
- it fits with the meaning of the preceding words but not with the topic or concepts of the text.
- the sentence with the incorrect response is sensible --> readers integrate and monitor ideas.
- it fits with the meaning and grammar of the sentence but not with the concepts or topic of text.

Following is a reader's performance on "I Want to Be Andy", from the TORCH.

Text	Reader's response	Follow in grammar	Fits with grammar of sentence	Follows in meaning	Fits with meaning of sentence	Fits with meaning of topic	Self-corrects when read aloud
who had ...in the	ambushed	√	N	√	√	√	N
labelled him as	Andy	√	√	√	P	P	N
because there was...	purple silk jacket	N	N	N	N	N	N
he realised..., because	bleading (bleeding)	N	N	P	P	N	N
such as ...and	to tell he was alive	√	√	P	P	P	N
Summary data		N = 4 √ = 3	N = 5 √ = 2	N = 2 P = 3 √ = 2	N = 3 P = 3 √ = 1	N = 4 P = 2 √ = 1	N = 7

From this summary table you can see that the reader

- monitored for grammar at the phrase level in approximately 50 % of the errors.
- monitored for grammar at the sentence level in 30 % of the errors.
- monitored for meaning at the phrase level in 30 % of the errors.
- monitored for meaning at the sentence level in 15 % of the errors.
- did not self-correct any of the errors when reading the text aloud after completing the cloze.

Subsequent assessment may examine whether the reader has the grammatical and meaning knowledge and whether the silent reading difficulties are due in part to non-automatic word reading .

Where to go next ? What reading behaviours do you assess?

Read prose aloud

<p>Read aloud isolated words to identify</p> <ul style="list-style-type: none"> • the types of words read automatically, • how reader reads unfamiliar words, • how reader integrates sound patterns in words
--

<p>Ability to recognise correct spelling: This indicates what orthographic knowledge</p> <ul style="list-style-type: none"> • has been learnt • can be transferred to unfamiliar words
--

Comprehension outcomes More generally, you can evaluate the different types of reading comprehension outcomes by asking the reader the types of comprehension questions at each of the levels of text.

Type of comprehension outcome	text A	text B
Word level ask reader to		
Suggest synonyms and antonyms for unfamiliar words in the text		
Suggest plausible meanings for words by using the context		
Sentence level ask reader to		
Retell a sequence of sentences, paraphrase sentence		
Answer literal questions		
Conceptual level ask reader to		
Make prediction about the text		
Infer, read between the lines		
Explain cause and effect		
Topic level ask reader to		
Suggest the area of knowledge into which it fits		
Suggest a title		
Summarise or precis the text in one or two sentences		
Dispositional level ask reader to		
Suggest what the text would like readers to believe about ideas.		
Suggest how the text wants them to feel.		

You can rate a reader's performance on each comprehension outcome, for example rate

- high level of comprehension as 4
- a partial comprehension as 3
- little comprehension as 2
- no comprehension as 1.

Describe each text by noting features such as

its genre; narrative-fiction, fantasy, expository, descriptive, poetry, play, argument	its grammatical complexity, the extent to which sentences vary from the simple third person.	the conceptual density of the text, the 'information load'	the extent to which the context differs from readers' experiences	the level of extra-linguistic support	the level of abstractness of the ideas, the level of complexity of word meanings
--	--	--	---	---------------------------------------	--

You may want to know the conditions under which a particular reader displayed each comprehension outcome. You can use the following process-outcome format:

Type of comprehension outcome	Level of help needed	When read text aloud	When visualised text	When re-read text
Suggest synonyms and antonyms for unfamiliar text words				
Suggest plausible meanings for words by using context				
Retell a sequence of sentences, paraphrase sentence				
Answer literal questions				
Make prediction about the text				
Infer, read between the lines				
Explain cause and effect				
Suggest the area of knowledge into which it fits				
Suggest a title				
Summarise or precis the text in one or two sentences				
Suggest what feelings, attitudes text does text present.				
Suggest how the text wants them to feel.				

Assessing knowledge of letter clusters

To assess readers' knowledge of letter patterns, you ask them to read different types of isolated words. Readers read words in different ways;

How readers read the words	The type of letter knowledge they have : Readers
correctly and rapidly	<ul style="list-style-type: none"> • have learnt the letter cluster pattern for the word • use particular distinctive features of the word correctly
correctly after a relatively long interval	<ul style="list-style-type: none"> • have difficulty recalling how to say the word • segment the word into several letter clusters that synthesised sub vocally
correctly by segmenting and saying each part	<ul style="list-style-type: none"> • have letter and letter cluster -sound links and use letter-sound analysis • can't process letter clusters without vocalizing them

Errors can also tell you about letter cluster knowledge. The main types of errors made by readers and what they mean:

Word reading error; readers	What this means for orthographic knowledge
jumble or delete letters; read 'plod' as "pold"	Reader has individual letters, not clusters or uses distinctive visual features of words.
read vowel / consonant digraphs (such as 'ar' in 'car' as separate letters.	Orthographic knowledge mainly at the letter level.
add sounds to written word	Inflexible phonological patterns and links
say word incorrectly after saying part of it correctly	Orthographic knowledge is at small cluster / letter level and reader has insufficient attention to <ul style="list-style-type: none"> • retain recoded letters, continue analysing word • retain recoded letters and integrate it.
say response that doesn't look like text word	Reader uses distinctive features or guessing.

Questions to ask about assessing what readers know about letter clusters.

- What letter patterns do they know ?
- How efficiently do readers use their letter patterns ?
- Do readers differ in how they read words in the isolated word and the prose contexts?

Assessing level of letter cluster knowledge You need to

- note how they read individually presented words with different letter patterns and
- identify those words and letter clusters read automatically and accurately.

Orthographic Reading Test

This test contains 1-syllable words that differ in complexity in the following ways:

- in number of letters; words range in length from 3 to 6 letters.
- in how the letters map into sounds, that is, whether every sound maps into a separate sound or whether two or more letters map into one sound.
- in the frequency of the word; whether the word occurs very frequently in the written prose of children, is of moderate frequency or infrequent.

The items on the Orthographic Reading Test are as follows:

how the letters map into sounds	frequency	3 letter	4 letter	5 letter	6 letter
1:1 mapping	high	men	send	stamp	strict
	middle	pen	bend	clamp	splint
	low	den	fend	cramp	prompt
(vc) regular	high	new	part	drawn	twirls
	middle	dew	cart	crawl	skirts
	low	pew	dart	straw	squirm
(vc) irregular	high	low	sort	burst	ground
	middle	cow	horn	burnt	counts
	low	tow	ford	spurt	sprout
(vv) regular	high	aid	soil	train	street
	middle	aim	boil	claim	screen
	low	ail	toil	braid	spleen
(vv) irregular	high	eat	road	spoon	spread
	middle	ear	goal	gloom	stream
	low	tea	foal	swoop	scream
(vcv) regular	high	ate	tune	place	strike
	middle	ape	cube	plate	strive
	low	ale	dune	grape	stripe
(cc) regular	high	she	miss	spill	spring
	middle	shy	kiss	grill	strung
	low	ash	hiss	drill	throng

To administer Orthographic Reading Test note whether readers read each word

- correctly and rapidly (that is, automatically) (denote by √)
- correctly after a longer interval (> 2 seconds) (write H above word for each second delay)
- correctly after saying part of the word first (write above the word the part/s said)
- correctly after saying each sound or some letter names (note what readers say above the word)
- incorrectly; note down what they say above the word.

Below is shown part of Michael's performance:

<i>clam</i>	<i>plant</i>	<i>for</i>	√	√	<i>drat</i>	<i>H H H</i> √	<i>c, cort</i>	<i>blow</i>	√	<i>H all</i>	<i>stip</i>
claim	plate	ford	men	hiss	dart	drill	counts	boil	new	ail	stripe
√	√	<i>ac, act</i>	<i>br --></i> √	√	<i>dun</i>	<i>cub</i>	<i>scr-een</i>	<i>sed</i>	<i>foil</i>	<i>bus</i>	√
place	eat	ace	braid	den	dune	cube	screen	send	foal	burst	stamp
<i>H H</i>	<i>fed</i>	<i>H H crol</i>	<i>H spinac</i>	√	<i>pen</i>						
pea	fend	crawl	spawn	spoon	pew						

Compile an orthographic profile for Michael as follows:

How word is read							
<ul style="list-style-type: none"> correct and rapid men den pen, miss kiss, hiss spill grill, drill, still stamp cramp ash, she cow, new straw, aid, aim, train 							
<ul style="list-style-type: none"> correct and slow spring, sprung, strong ash, string 							
<ul style="list-style-type: none"> correct and slow, part of it said before reading the word street ---> string --->√ part ----> p-art --->√ 	Types of errors						
<ul style="list-style-type: none"> incorrect send, bend, fend clamp strip -> sed, bed, fed, c-amp, stip strict, splint, prompt ----> sRICT, sp/speed/split, prum shy ----> shay dew, pew ----> den, pen ape, plate, grape, ale, ace --> apple, plant, gran, all, ac/act twirl, squirm, skirts --> tweel, squick, skrits crawl, spawn, drawn ----> crol, spinach, down 	sj	sd	dl	nos	spc	mv	
		√					
		√					
		√	√		√	√	
	√				√	√	
			√			√	

sj - letters in the stimulus word were jumbled in the spoken response

sd - letters in the stimulus word were deleted in the spoken response

dl - response is a word read accurately by reader and shares visual features with the stimulus

mv - mispronounces vowel digraph (vv, vc or v-c)

nos- response is a word read accurately by the reader but has no orthographic similarity to the stimulus.

Analyse patterns and compile a word recognition profile, as follows :

note orthographic similarity between words read relatively automatically	Michael read automatically the shortest words and the high frequency words, particularly those in which each letter maps into a separate sound
note how words read correctly but not automatically are similar to / different from words read automatically	Michael <ul style="list-style-type: none"> said more slowly words that had the (cc) digraph said the onset prior to the rime for some (vv) and (vc) digraph
for words read incorrectly, note similarities between the written word and the reader's response.	Michael <ul style="list-style-type: none"> deleted a letter from several consonant blends, (for example, spr, scr, end in words such as send, bend, fend, strict, clamp). juxtaposed letter positions. This suggests difficulty <ul style="list-style-type: none"> seeing letter clusters as units, for example, not seeing the 'ir' unit in skirts. linking some of vc and vv digraphs with their correct sounds, for example, ar, aw, ir, ew, ow, or, ur, ou, oi, ai, oa, u-e, i-e and a-e.
note the extent to which readers use what they know about some words to recognise others.	Michael read <ul style="list-style-type: none"> 'new' correctly, but didn't transfer the 'ew' to read 'dew' or 'pew'. 'ate' and 'place' correctly but didn't transfer the a-e to 'ape', 'plate' or 'grape'.

These patterns suggest that much of Michael's orthographic knowledge is at the individual letter level.

Transferring orthographic knowledge by analogy. The ability to transfer a letter group such as 'ew' from one word to another is necessary for efficient word reading. You can compare how well a reader reads both the high frequency and the low frequency words for a particular rime unit.

Analysing reading patterns

Readers show different reading patterns in what they find easy and hard.

Pattern	Explanation; readers
Silent reading comprehension > word reading accuracy	have difficulty saying text aloud
Word reading accuracy > silent reading comprehension.	<ul style="list-style-type: none"> • lack oral language for comprehension. • don't use appropriate comprehending strategies. • focus attention on word level.
Shorter text comprehended > longer text	<ul style="list-style-type: none"> • don't use comprehension consolidation strategies effectively. • don't have sufficient short term memory thinking space. • difficulty sequencing, integrating and organising text ideas. • because word reading not automatised, attend to this.
Reading aloud comprehension > word reading accuracy	rich verbal conceptual knowledge, poor word reading due to poor <ul style="list-style-type: none"> • phonological and phonemic knowledge • vocabulary knowledge • visual coding and processing.

Analysing how readers read

The types of reading strategies to look for in your assessment are:

- how readers plan and decide how they will read.
- what they do 'while reading', how they link and organise the ideas they read.
- how they consolidate what they have read. Note whether the readers
 - use various strategies independently,
 - know when to use each strategy,
 - can apply the strategy to a range of text or just to simpler text.

To assess what readers know about the strategies to use:

- ask them to 'think aloud' or to say how they read ('reflective reading assessment')
- ask them to use strategies and see whether this helps their reading ('interactive assessment').
- use questionnaires and / or interviews that ask students what they do when they read and what they think are 'good' or useful actions to use when they read.

Use these procedures to see what readers know about reading strategies to use and what actions they need to learn.

Interactive evaluation :When do readers improve their reading ?

Ask readers to use particular strategies and note the ones that improve reading. Types of conditions under which you can cue readers to read include the following:

<p>Before beginning to read the text in detail ask readers</p>	<ul style="list-style-type: none"> • <i>What is the text about?</i> Ask readers to: <ul style="list-style-type: none"> • guess the theme of the text and to say the information they use to decide this. • suggest words that might come up in the text and how they would spell some of them, the letters some might begin with. • <i>What are you reading for?</i> Ask readers to say their purpose for reading, what questions they think the text will answer. • <i>What will you do to help you read?</i>
<p>While reading the text in detail, you can ask readers to</p>	<ul style="list-style-type: none"> • visualise as they read, to 'make a mental picture' of each sentence they read. . • read a small portion of a text, say it in their own words or retell it as they go, talk about some of the ideas they think might arise in sentences, to talk about the images they have in their minds when they first guessed the topic. . • re-read difficult portions of text and note whether their performance improve. • <i>"Imagine you were there. What might happen next?"</i> Ask them to 'think ahead', to predict and then to check their guesses.

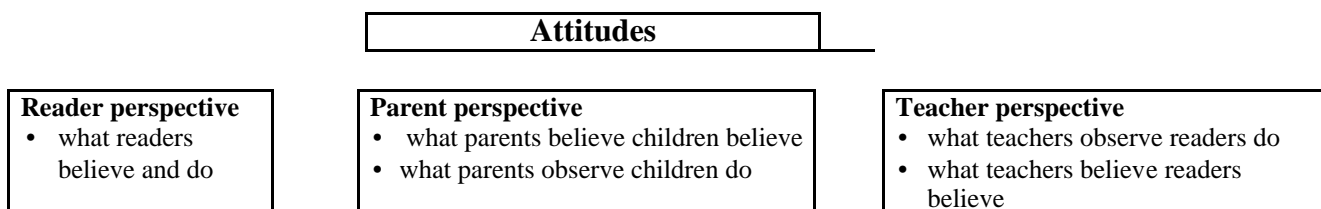
You can also see if readers improve their reading when you

- make the print bigger,
- cut up the text into smaller sections, each consisting of two or three sentences,
- allow readers to track along each line using their finger,
- have them read more slowly.

Attitudes to reading. To assess attitudes to reading

- collect observational data re classroom reading preferences, from parents
- interview the readers about their feeling towards reading and their reading habits
- use questionnaires that tapping attitudinal behaviours, self-reports and interest inventories.

Parents may see the anxiety and frustration caused by reading and the avoidance behaviours. Teachers and parents see how readers direct their on-task attention while reading and their reading habits.



Observing attitudinal behaviours in the classroom : whether readers:

- spontaneously approach reading and choose versus avoid reading wherever possible
- show enjoyment or satisfaction versus a dislike for reading, show negative mood changes
 - withdraw into themselves
 - try to avoid reading even to the point of mis-behaving
 - become behavioural problems, irritating and disturbing those around them
 - be more emotionally 'labile' in reading
- display curiosity and excitement versus anxiety and frustration during reading
- are interested / keen versus unwilling to show the outcomes of reading
- request the opportunity to read
- maintain interest versus easily distracted while reading
- show helplessness, increased dependence during reading, request excessive assistance
- seem less able to control and manage cognitive performance
- show an ongoing dislike of and frustration towards reading, behaviours that suggest they
 - want to stop learning reading as soon as possible
 - are overly anxious about reading, fear making errors
 - are rigid in how they read, won't take risks, explore ideas
 - lack confidence in themselves as readers

You can also observe

- how many times a week the reader chooses or elects to read.
- how well the child maintains on-task attention behaviours while reading.
- the approximate length of time for which the reader usually sustains an interest in reading.
- the types of books that interest the reader, the kinds of reading material the reader selects

Observing attitudinal behaviours in the home Parents often see whether their children

- are generally interested in reading or need to be forced to read.
- give up on reading tasks more quickly than other tasks.
- show an ongoing dislike of, and frustration towards, reading, whether they are more likely to throw tantrums when required to read.

Readers attitudes to reading The types of information you might examine include

- what they believe about reading, its values, what reading is like, its value, how it can be enjoyable, interesting or useful.
- how they feel about reading.
- their self-concept as readers.
- what they believe about how to read; what they do when they read, whether it is acceptable to make mistakes, to re-read, to guess at words they don't recognise immediately.
- their interest in reading, what they like to read.

Explaining reading performance:

immature earlier language development such as <ul style="list-style-type: none"> • specific delay • phonological or phonemic processing • RAN • grammatical knowledge • short term auditory memory • vocabulary 	emotional factors such as <ul style="list-style-type: none"> • lack of self concept, • anxiety • depression in learning context 	thinking, , reasoning and information processing factors: <ul style="list-style-type: none"> • analytic-sequential learning preference • memory abilities, • amount of information person can handle, • types of relationships person sees between ideas •
sensory, perceptual processing impairment; <ul style="list-style-type: none"> • visual • auditory 	Reading difficulties can be caused in part by	<ul style="list-style-type: none"> • lack of earlier access to appropriate teaching. • involvement in contexts in which reading is not a valued activity

It is usually not possible to infer these causes directly from reading patterns.

What tasks/tests would you use? Explanations for the reading disability come from the level of the model shown below. Suggest tasks/tests that you would use to analyse reading at each of these levels of the model.

Self-management and control strategies		
<ul style="list-style-type: none"> • frame up reasons or purposes for reading a text, plan how they will read • monitor our reading, initiate corrective action, decide when to re-read, self-correct, how they use what they know at each level, monitor how their reading is progressing, take remedial actions if necessary and, having read, • review and self-question to see whether reading goals achieved, review or consolidate what they have read • organise the information gained from reading to fit our purposes for reading 		
Existing knowledge		
<i>Oral language knowledge</i>	<i>Nonverbal knowledge, imagery and action knowledge</i>	
<ul style="list-style-type: none"> • at word level, • at sentence level • at conceptual level, • at topic or theme level, • at the pragmatic or dispositional level 		
Sensory and motor aspects of expressive language		
Auditory input	Visual input	Motion input

Referral data

Information from	
reader's teacher and school	<ul style="list-style-type: none"> • past approaches and present approach to reading instruction • whether the reader has the prerequisites for learning to read, such as <ul style="list-style-type: none"> • visual capacities. • oral language and communication strategies, • cognitive strategies, eg. whether the reader remembers information • appropriate task-organisational strategies • attitudes to reading; positive attitude to reading and to self as a reader. • reader's general classroom learning,, learning difficulties in other areas.
readers	<ul style="list-style-type: none"> • how they see reading; what they do when they learn reading, how they feel about making mistakes, to re-read, to guess at words they don't know immediately. • how they see reading, its values, how it can be enjoyable, interesting, useful. • their emotional response to reading; whether they feel frustration, anxiety • their self-concept as reading students.
the child's parents	<ul style="list-style-type: none"> • view of reading held by the reader, for example, whether readers <ul style="list-style-type: none"> • are interested in reading, • need to be forced to do reading tasks more than other homework tasks • give up on reading tasks sooner than other tasks, spend a lot time trying to read, • achieved the appropriate developmental milestones in language and in other areas, • indicate an ongoing dislike of, and frustration towards, reading. • view of reading held by parents, for example: <ul style="list-style-type: none"> • Has the child been encouraged in the past to do reading? • Have the reader's siblings shown an interest in reading? • Did the reader's parents find reading hard to learn. • Has parent assistance in the past clashed with approaches used at school? • when did the reader first began to display reading problems and was this emergence associated with another event, for example, a physical injury or illness? • the reader's developmental history. Parents can provide information about: <ul style="list-style-type: none"> • whether readers achieved appropriate developmental milestones • whether readers displayed intermittent hearing loss
General referral information	<ul style="list-style-type: none"> • source and reason for referral, • when the teacher or parent first became aware of the child's reading problem, • earlier steps taken to help the child, • learning difficulties in other areas, • involvement of other professionals in the child's learning history such as: <ul style="list-style-type: none"> • sensory impairment; for example audiologist, ophthalmologists • psychologists; data re developmental delay, general ability, social interaction, • medical; eg neurologist, psychiatrist, illnesses such as asthma, epilepsy, allergies, medication on learning, effect of earlier traumas and injuries on learning, • motor development; implications of motor disabilities on reading.

Psycholinguistic knowledge

A major cause of reading difficulty is the reader's knowledge of oral language knowledge. Areas that explain reading difficulties are in the following figure.

Word level	<ul style="list-style-type: none"> • level of word meanings 	<ul style="list-style-type: none"> • pronunciation of words 	<ul style="list-style-type: none"> • recalling names
Sentence level	<ul style="list-style-type: none"> • meaning propositions 	<ul style="list-style-type: none"> • syntax 	<ul style="list-style-type: none"> • comprehend ideas
Conceptual level	<ul style="list-style-type: none"> • predict cause-effect 	<ul style="list-style-type: none"> • ideas in networks, episodes 	
Topic level	<ul style="list-style-type: none"> • ideas for topic 	<ul style="list-style-type: none"> • topic sentence 	

As well, readers need to use metacognitive knowledge.

Linking reading difficulties with psycholinguistic processes.

Word reading difficulty?

Difficulty reading words accurately or automatically can be due to:

- phonemic awareness knowledge
- ability to recall names automatically
- vocabulary knowledge; the reader's knowledge of word meanings
- ability to pronounce words accurately.

		3-sound words	4-sound words	5-sound words
1	An implicit awareness of sound patterns			
1.1	Recognise rhyming words			
1.2	Produce rhyming words			
1.3	Produce rhyming words in prose			
1.4	Recognising words that alliterate			
2	Segment words into sounds			
2.1	Segment words into onset and rime			
2.2	Identifying the first sound			
2.3	Identifying the last sound			
		2-syllable words	3-syllable words	4-syllable words
2.4	Segment word into syllables.			
		3-sound words	4-sound words	5-sound words
2.5	Segment word into sounds			
2.6	Phonemic tapping			
2.7	Phonemic counting			
3	Sound blending			
3.1	Onset-rime blending to make a word			
3.2	Blending a sequence of sounds			
4	Manipulating sounds within words			
4.1	Delete sound from a word			
4.2	Substituting one sound for another			

Locate reader on the developmental sequence to see how far away a reader is from 2.5-7 and 3.2.

Ability to recall names automatically: Rapid naming task	Retrieving words efficiently such as colours, letters, digits and objects
Pronouncing words accurately	particularly multi syllabic words

Vocabulary knowledge

Skill	Sample task
recall the names of pictures	
select picture that matches a word heard	
define words	
state synonyms and antonyms for words	

You can compare:

- naming items vs selecting the item with a name; compares receptive and expressive vocabulary
- naming items vs explaining what they mean.
- stating synonyms vs defining the words---> how readers have organised word meanings.

Literal comprehension difficulties?

Understanding sentences as they are written:

Skill	Sample Task
understanding meaning in different types of sentences; readers <ul style="list-style-type: none"> • retell them, • answer questions • select picture that best matches what they heard, • act out what they heard 	
listening comprehension ; readers select pictures that match sentences hear	
imitate sentences of increasing complex grammar	
recognise grammatically correct sentences	
say grammatically correct sentences	

Ability to retain information in short term auditory memory

Type of memory skill	Sample Task
repeat sentences of increasing complexity	
retell a story heard, paraphrasing	
recall verbal versus nonverbal information	
recall unrelated information: Short term memory span	
working memory span for reading; readers read aloud a set of unrelated sentences and recall the final word in each	

Inferential comprehension difficulties while reading can be due to:

Type of understanding	Sample Task
predict and anticipate in listening comprehension	
explain cause and effect	
link two or more concepts in a network	

Visual coding abilities:

Processing clusters of letter information

Detect letter strings in longer strings without reading aloud as on the Whole Word Recognition test shown opposite.

Readers see a set of 5 words and circle the two words that are the same:

yellow
little
kitchen
pretty
little

father
family
funny
father
friend

name
come
came
home
came

Learning to code information

Coding subtest of the WISC III. Note:

- how easily they learn the match between a number and its symbol.
- whether they vocalize as they learn the code.
- whether they operate in an impulsive way or a slower, measured way.
- whether their speed increases or decreases as the task continues

Does general ability explain the reading difficulty?

Readers who have reading difficulty often have difficulty:

- analysing information in ways that are necessary for literacy learning, operating analytically.
- matching what they know about a topic with how it is described and developed in a text.
- thinking about the ideas in the text in particular ways, linking them verbally and nonverbally.

Assessing general ability will help you see whether a reader has these skills. Individually administered scales that cover both verbal and nonverbal areas are usually the most useful. Test used most often: Wechsler Intelligence Scale for Children III (WISC III).

	WISC III
Recall verbal general knowledge, information	Information
Describe how verbal concepts are similar/differ	Similarities
Solve quantitative problems	Arithmetic
Describe the meanings of words, vocabulary	Vocabulary
Explain various phenomena	Comprehension
Retain information in short term memory	Digit Span
Comprehend visual information in context	Picture Completion
Arranging picture to tell a story	Picture Arrangement
Analyse and construct a spatial design	Block Design
Arrange parts to make an object	Object Assembly
Scan set of arbitrary symbols for target symbol	Symbol Search
Learn an arbitrary visual code	Coding

To use the WISC III scores for diagnostic purposes, identify the subtests that show greatest deviation.

The key questions to ask the psychologist who did the test:

- Is reader stronger in either the verbal or nonverbal area?
- Does reader show strength or weakness on specific subtests?
- Does reader show strength or weakness in any specific subtests?

For those who have reading difficulties, compare Arithmetic, Coding, Symbol Search and Digit Span scores with the verbal and performance scores. Students who have reading difficulty are often lower on ACID, SCAD, CAD than on other subtests.

Cognitive style and reading difficulties

Cognitive styles can be grouped into two principal styles: how individuals

- process information can be described on an analytic - wholistic dimension
- code or represent information; verbal and nonverbal imagery dimensions.

