




Introducing RLI

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Introducing RLI: improving reading and language progress for school children with Down syndrome

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Background

- DSE's Reading and Language Intervention for Children with Down Syndrome (RLI) is an evidence-based program designed to teach key reading and language skills to children with Down syndrome
- Developed and evaluated by researchers at DSE and at the University of York in a project funded by the UK Big Lottery Fund




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Overview

- What is RLI?
- Why do we need RLI?
- How did we design RLI?
- What do we know about its effectiveness?
- Delivering RLI
 - Reading strand
 - Language strand
- Handbook and Resources for educators
- Other sources of support and training




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Introducing RLI

What is RLI ? 


- RLI is an intervention designed to teach children with Down syndrome (5-11years) to read and to improve their spoken language
- It includes a reading strand and a language strand – provides an individual daily lesson for each strand
- There is a structure to each lesson which is always the same but content taught in each lesson is tailored for each child and can be linked to the curriculum
- Small steps, consolidation, recording progress are features
- RLI can be taught effectively by teaching assistants




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Why do we need RLI? 

- Children with Down syndrome vary widely in abilities but most have learning difficulties
- In recent years we have learned quite a lot about their learning profile and how to teach more effectively
- Their spoken language is typically their area of greatest delay and should be a focus for intervention
- They tend to have delays in verbal short term memory
- We know that children with Down syndrome can learn to read but most will need adapted teaching
- Teachers told us they needed more guidance




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Designing effective reading instruction 


- Effective reading interventions combine training in phonics with teaching sight words and book reading
- Evidence suggests this approach works for many children with Down syndrome
- This approach does not improve reading for all children, with and without Down syndrome
- Non-responders tend to have additional weaknesses in vocabulary and grammar
- A combined intervention approach teaching both reading and language can be effective for this group
- (See Carroll et al 2011 and RLI Handbook for research references)

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Designing effective language instruction 


- Learning of new vocabulary (receptive skills)
- Use of new vocabulary (expressive skills)
- Grammar (understanding and using new vocabulary in sentences)
- Beck, McKeown & Kucan (2002, 2013):
 - Many opportunities to see, hear and say the word
 - Examples of the word in many different contexts (broad understanding)




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How did we design of RLI? 

- Draws on what we know about the language learning and reading profiles of children with Down syndrome
- Draws on research into the most effective ways to teach reading and to teach language
- Adapted for learners with Down syndrome
- Designed to be practical to implement effectively in inclusive schools
- Should also help children in special classes



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Adapting teaching for children with Down syndrome – learning profile 

- **Learn more slowly** - Small steps, intensive daily instruction, frequent opportunities for revision and consolidation
- **Short term memory** - visual stronger than verbal - Visual supports for learning
- **Comprehension an extra challenge** - Emphasise and support reading for meaning from the outset
- **Maintaining attention and managing behaviour** - Short, varied activities and teaching approaches that ensure success
- **More support for phonological awareness and phonics** - Explicit instruction and frequent practice, alongside sight word instruction
- **Recognising the wide range of ability** – adapts for individual abilities

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What do we know about effectiveness? dse

- Evaluated with RCT and over 2 school years
- Recruited 57 children – 5 to 10 year olds at start – all in inclusive schools – full members general education classes
- No exclusion criteria – varied and representative group
- Randomly divided into 2 groups
- Train teaching assistants to deliver RLI (2 day training)
- One group receives intervention daily for 20 weeks other continues with 'teaching as usual'
- Then all children receive intervention daily for two further 20 week blocks

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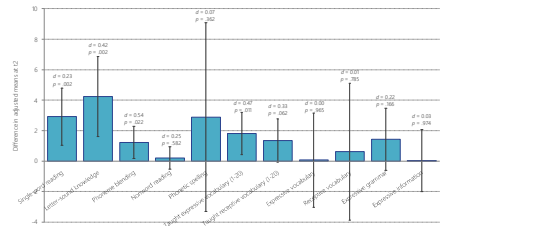
Published information on study and findings dse

- Scientific report published in Journal of Child Psychology and Psychiatry: <http://dsuri.net/OXROOZ> (free access)
- Further information on RLI web site: <http://dsuri.net/YLCs1j>
- This session presents the intervention in more practical detail



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Effect of Intervention: Week 20 – RCT findings dse



Skill	Mean Difference	p-value
Single word reading	~3.2	0.023
Morpheme knowledge	~4.2	0.002
Phoneme blending	~1.5	0.054
Alphabet knowledge	~0.5	0.025
Rhyming words	~3.0	0.001
Sight word recognition	~2.0	0.001
Word recognition	~1.5	0.001
Comprehension	~1.0	0.001
Non-verbal IQ	~0.5	0.001
Reading fluency	~1.5	0.001
Reading comprehension	~1.5	0.001
Reading motivation	~1.5	0.001


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Explaining our main findings 


- On most measures intervention group progressed faster
- Some small gains, some larger – 4 were statistically significant (unlikely due to chance): letter knowledge, word reading, phoneme blending, expressive vocabulary
 - These reflect directly taught skills – and these gains did not yet transfer to gains in spelling, non word reading or standardized language measures. (Maybe not a surprise given the demands of the reading tasks and the extent of language difficulties for children with Down syndrome.)
 - The waiting control group progressed faster when they moved to the intervention – and showed similar gains to the intervention group

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What predicts individual differences in progress? 

- Wide variation in progress made on intervention – some children made rapid progress, other slower progress and some very little progress
- What influenced progress? - age, receptive language and no. of sessions
 - Younger children tended to make more progress – **those starting at 5 and 6 years**
 - Children with **better receptive language** tended to make more progress
 - Intensity matters** - children receiving at least 80% of the intervention sessions made more progress
 - BUT not all 5 and 6 year olds went fast and some older children did, some children with more delayed receptive language progressed with reading
 - The children who made least progress could not be predicted from starting measures of abilities, behavior, language
 - The only advice we can give is to try it – well planned and adapted to the individual child.

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Feedback from teaching assistants 

- Teaching staff delivering intervention reported that:
 - Though the intervention was hard work they enjoyed it
 - Increased confidence and feelings of competence
 - Improved skills and expertise
 - Increased self-esteem and greater job satisfaction
 - Potential for application to other children in the classroom

I am absolutely adamant that this program (even though it is tailored for and suits children with Down syndrome extremely well) can be successfully used on many more children that struggle with a regular reading scheme.

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Teaching assistant and parent feedback 

- Supported evidence from standardized tests


I think this [the intervention] has made the biggest difference to X out of everything we have done over the last 2.5 years.

The writing has suddenly taken off!

His vocabulary has extended and his use of words in the correct tense has improved too.

Many people have commented on how much X's speech has improved and that they can now understand him.

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Rolled out worldwide since 2012 

- Handbook and Resources published 2012 <http://dsuri.net/rlihandbook>
- Developed training for educators and trainers
- Rolled out in Texas school district pilot to show applicable in US schools
- DSE accredited trainers in UK, Ireland, USA
- Uptake steadily increasing – school districts, individual schools
- Being used with other children with similar cognitive and language delays

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Guidance on using RLI 

- Suitable for children with Down syndrome aged from 5 to 11 years (max reading of 8 years)
- Guidance provided in handbook for children just getting started with reading and with poor language skills
- Can be delivered by teaching assistants and should preferably be delivered as part of school education
- Recommended where Resources and commitment to deliver RLI consistently for at least 20 weeks




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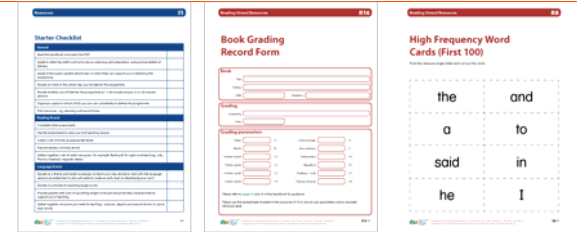
Starting the program

- Identify 2+ key staff to deliver intervention
- Team approach: class teacher, SENCo, reading specialist, teaching assistants, speech and language therapist
- Spend 3-4 weeks familiarizing yourselves with program and organizing how you will deliver it in your school
- Quiet area, planning, organizing resources
- Assessment week



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Materials for assessments, planning, recording progress are on CD




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Session structure

Strand	Component	Duration
Reading	Easy level book reading	2-3 min
	Instructional level book reading	5 min
	Sight word reading	2-3 min
	Letters, sounds and phonology	5 min
	New instructional level book reading	5 min
Language	Introducing new words	5 min
	Reinforcing the meaning of new words	5 min
	Using new words in connected speech	5 min
	Using new words in written language	5 min


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Individualizing the program 

- Wide range of abilities, interests and motivations
- Important that the program is pitched at the right level for the child
- Assessments taken before starting determine right starting level
- Ongoing assessment and records of progress
- Suggestions for ways to adapt/extend the program
- Be confident and use your knowledge of the child
- **Examples of children with different skills and abilities engaged in RLI activities on the DVD**


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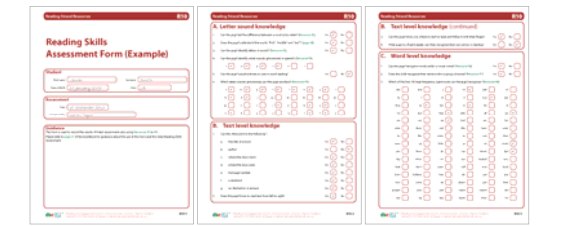
Reading Strand 

- Assessment for learning
- Strand begins with a series of assessments
 - Knowledge of letters and sounds (phonemes)
 - Word-level knowledge
 - Text-level knowledge
 - Reading test
- Essential for pitching the program at the right level for the individual child
- All assessment materials and instructions included



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Reading skills assessment 



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Reading strand session plan

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Taking a Running Record

- Essential component of instructional book reading
 - tracks reading and accuracy levels
 - helps determine teaching (when to move on to the next book/level, words to teach)
 - identify child's reading strengths and weaknesses
- Taken before starting program and in every teaching session– becomes routine
- Instructions provided in handbook and on DVD
- Video on next slide shows example (all video clips taken in schools during study)

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Book reading (components 1, 2 and 5) 

- Easy level book (1)
 - >94% accuracy
- Instructional level book (2)
 - 90-94% accuracy
 - Running record taken
- New book at instructional level (5)
 - Shared/guided reading
 - Becomes next book for assessment
 - Video on next slide shows book reading – and example of book made for an early reader with text at his language level

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Books 

- Experience of a range of real reading books
 - Motivating and interesting to child
- Levels from beginning readers to RA of 8 years
 - Starting point determined by assessment
 - Read 3-4 books at each level (consolidation)
 - Running Record determines when to move to next level (progression)
- Finely graded - Hatcher grading scheme (Hatcher, 2000)
 - Information provided for you to grade books that are available in school
 - Book list from research project (widely available books) is also provided


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Sight word learning (component 3) 

- Words child can read by sight
 - Strength in children with Down syndrome
 - Many high frequency words in English are not readily decodable
- Which words?
 - Beginning readers: personal words, characters, motivating words
 - High frequency words (Letters & Sounds, DCSF): first 100, next 200
 - Topic words from school
 - Tricky words from reading books

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Sight word teaching – range of activities 

- Word walls, word hunts, flashcards, physical games.....
- Including practice of 'known' words and new learning
- In isolation and in context
- Pace dependent on child
- Keep a record of ALL words child can read




- Next slide – video of sight word session

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Letters, sounds and phonology (component 4) 

- Each teaching session should include:
 - Learning letter-sounds
 - Phonological awareness (listening to sounds)
 - Linking letters and sounds
- Targets ideally related e.g.

a) letter sounds	Introduce letter sounds 'r' and 's'. Review previous letter sounds 'c', 'm', 'p' and 't'.
b) phonological awareness	W.A. Blending (e.g. 'cat', 'tall' use picture support). (A: 'I want shopping and bought tea/sausages/pasta/ice-cream') (Child listens to sounds and identifies the word)
c) linkage activity	Can the child read the words on the shopping list (tea, pasta, jam, juice)?

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Children vary widely in phonics progress 


- The next two slides provide video clips of children at different stages
- The first is a phonological awareness activity – this student is learning to identify words by their initial sound playing 'I spy'. Note that his TA is taking turns with him – he does one, she does one. This can be a very motivating strategy – if you watch carefully you will see she is often makes an error – so the student is actually doing them all!
- We are keen on teaching approaches that prompt success and make learning fun – ideas in Handbook
- The second video shows a child who can blend in listening mode – do not underestimate what is possible with careful teaching

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Language Strand 

- Introducing and reinforcing meaning of new words
- Using the new word in expressive language (spoken and written)
- Increase children's breadth of vocabulary (understand and use more words)
- Increase children's depth of vocabulary (understand more about words they know)
- Highly interactive
 - Components can be tailored to individual abilities
- Visual

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Choosing vocabulary to teach 

- Which words?
 - Related to themes
 - Motivating, meaningful and useful to child
 - Where possible imageable
 - Not necessarily completely new
- How to identify words?
 - Classwork/topic work
 - DSE vocabulary checklists
 - Consultation with parents/SLT
 - Reading books



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Language Strand

- Each theme should target a range of word types (nouns, verbs, adjectives, prepositions)
- Words mostly taught in isolation but sometimes in pairs (e.g. on & in, tall & short)

Week	Monday	Tuesday	Wednesday	Thursday	Friday
1	Snap	Crunch	Chew	Flick	Crumbification
2	Crunchy	Soft	On	In	Consolidation

- Work on base form but room to extend e.g. verb tenses

chew **chewing** **chewed**
 1 am going to chew the 2 am chewing the 3 have chewed the

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Language strand

- (1) Introduce and discuss new word: Provides written, spoken, and pictorial forms of new vocabulary
- TA introduces word and encourages child to say
- Child and TA discuss word using related photos
- Emphasis on relating to child's experience, and building a rich, multi-contextual understanding
- TA and child might create a word web
- Next video illustrates new word learning

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Language strand 

- (2) Reinforce word meaning: Increases the depth of the child's understanding of new vocabulary by discussing word meanings in different contexts
 - Activities are game-based e.g. Matching, Sorting, Demonstrating
 - Difficulty level can be adjusted according to the learning style and needs of the child
- Emphasis on:
 - Multiple encounters
 - Using games as a springboard for more discussion about the meaning of the word
 - Having fun with the new word

Next video clip demonstrates developing understanding of words

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Language strand 

- Work on expressive language: Encourage the use of appropriate syntactic and pragmatic language skills
- (3) Child generates utterance containing new word
- (4) Child generates written sentence containing word
 - Guided by child's language level; aim to increase utterance length or complexity
 - Encourage/model/extend appropriate grammar
 - Scaffolded by TA
 - Independent writing; tracing; cut up sentences;
 - writing key word
 - Supported by pictures
 - Record kept in topic book


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Language strand dse 




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Topic book dse 

- The topic book has a number of purposes:
 - Communication with parents
 - Record of child's achievements
 - Record of what has been taught so far
 - Reference book – can be referred to and revised from
 - A source of 'easy' reading material

Next video shows making topic book



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Language strand 




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Language strand resources 


- 4 weeks (2 themes) of scripted language work are provided
- Suggestions for teaching activities
- Guidance on choosing words to teach
- Ideas for finding visual supports for use in teaching



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Handbook - <http://dsuri.net/riihandbook> 

- Instructions for how to deliver each component, ideas for teaching activities and adaptations to suit individual abilities
- Practical information on delivering intervention, record keeping and collaboration
- Resources for assessments and teaching, planning and record keeping
- Video illustrating each component and activities for teaching, including examples of children with different starting levels, strengths and weaknesses




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Other support – keep eye on DSE website 


- Website www.dseinternational.org
- Support and training resources include
- **Email discussion forum** for parents and educators
- **Facebook RLI group** for parents and educators
- **Online training courses** under development
- **Training and consulting services:** in-person and teleconference with accredited trainers available
- **Accredited training courses for RLI trainers** – online course under development

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Roll out feedback – experienced specialist teacher 

- "The children I'm working with have made more progress with their reading skills since we started the program 4 weeks ago than they have in the last year - without a short sharp regular intervention like RLI which encompasses all the reading skills on an almost daily basis, I don't think these kids are going to make the progress they are capable of. I've also started the reading intervention with a non DS child and it's having the same effect on progress :-)"
- I'm finding improved language in general as well as what we've been working on and I feel that they've been making more links between learning as a result."

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Independent assessment – York and RLI 


- The Reading Intervention Programme
- <http://www.thereadinginterventionprogramme.org.uk/>
- This is supported by Greg Brookes see <http://www.interventionsforliteracy.org.uk/interventions/list-view/the-reading-intervention-programme/>

He states

- *Of all the studies featured on this website, this is the one with the strongest research evidence behind it.*
- *Another variant was used in the world's first randomised controlled trial conducted with children with Down's syndrome; they made modest progress that was nevertheless useful for them.*


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Independent assessment 

- RLI is included on What Works, a moderated virtual library of evidenced interventions to support children's speech, language and communication which can be accessed at www.thecomunicationtrust.org.uk/whatworks
- Whilst inclusion does not constitute an endorsement from the What Works Moderating Group, it means that the Moderating Group have assessed the evidence base as meeting the evidence criteria required for inclusion.
- What Works aims to support decision making, not determine it; the Moderating Group encourages all users of What Works to read the summaries of each intervention carefully and wherever possible access the evidence referenced.

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Down Syndrome Education International is dedicated to improving education for children with Down syndrome worldwide



"The Charity is now central to the worldwide understanding and sharing of research from many academics and the longer-term experience of those working with generations of children with Down syndrome." (New Philanthropy Capital)

<https://www.dseinternational.org/en-gb/support-us/>

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